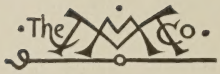
THE PLATOON SCHOOL

SPAIN

THE PLATOON SCHOOL



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THE PLATOON SCHOOL

A STUDY OF THE ADAPTATION OF THE ELEMENTARY SCHOOL ORGANIZATION TO THE CURRICULUM

BY

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FOREWORD

In his upward struggle from savagery to the higher plane of civilization the creative genius of man, as his means of control have increased, has fashioned tools of stone and of metal. These inanimate things are meaningless in themselves. They are merely the expression in permanent form of the ideals and aspirations of the individual and of the ever changing social groups of which he has been a part. They are the milestones which mark the progress of civilization.

By the same token, all social organizations are the objective embodiment of society's ambitions and struggles toward some coveted goal. The school curriculum, the school organization, and the architectural environment in which instruction takes place are the resultants of many complex and contending forces which in ages gone by have influenced educational thought.

The universe is dynamic and the law of life is change. Devices and mechanisms may be transient and fleeting. That which bulks large today may become a mere speck on the educational horizon tomorrow. Fundamental truths alone are permanent and lasting. Therefore, every new type of school organization must stand an acid test. It must square with the past; it must serve the present; it must hold abundant hope for the future.

This dissertation undertakes to submit to this acid

test a new type of school organization, the platoon school. It recognizes the curriculum to be merely the outcome of varied and diverse social forces. It views the organization as the mechanical device through which the curriculum finds expression. It conceives the school building as the physical environment in which the curriculum and organization may function.

This discussion is concerned with the genesis of the twentieth century curriculum and with an analysis of those social factors which have produced it. It is concerned with the nature of the twentieth century school organization as it has evolved from the more simple forms which have preceded it. It is concerned with the twentieth century school building as the lineal descendant of the simple and primitive structures of an earlier day. In a word, it aims to discover how the platoon school squares with the past.

This treatise also seeks to determine in what measure the platoon school serves the present. It undertakes to inquire whether its curriculum reflects those social ideals and aims which are most worth while; whether as an organization it functions in harmony with sound principles of philosophy, psychology, and physiology; whether architecturally it provides an environment conducive to the health, happiness, and progress of the children; whether its educational product is of high standard; and whether its varied activities and facilities can be provided without imposing an unreasonable financial burden upon the public.

Finally, this thesis contemplates the platoon school in the light of the future trend of educational thought. It recognizes that certain influences are now at work

which, at no distant day, may profoundly modify both theory and practice. It raises the question whether the curriculum, organization, and architecture of the platoon school are sufficiently flexible to lend themselves readily to those readjustments which the future is certain to bring.

The present study is the outcome of an attempt to reconstruct a large elementary school system in terms of twentieth century ideals and needs. Whatever measure of success has attended this undertaking has been due to the coöperation of many people — teachers, principals, and supervisors — to all of whom the author feels under obligation.

Among his professional associates who have participated in the active work of developing platoon schools, the author acknowledges his indebtedness to Miss Rose Phillips, Director of Platoon School Organization in Detroit, whose initiative, energy, and enthusiasm have made her invaluable in the practical work of reorganization. Miss Phillips, aided by her assistant Miss Claudia Wilson, has evolved and refined the various types of programs, and has developed an effective technique of organization and administration adaptable to all platoon schools.

In the preparation of this work the writer has been aided by the constructive criticism of Dr. Stuart A. Courtis, Director of Instruction in the Detroit Schools and Dean of the Detroit Teachers College, to whom is also due the credit for much of the data on educational results included in Chapter IV.

The author is also indebted to Dr. Arthur B. Moehlman, Professor of Education, University of Michigan,

for many helpful suggestions and for aid in the preparation of statistical data, to Dr. Paul C. Packer, Dean of the School of Education, University of Iowa, and to Homer C. Anderson, Assistant Superintendent of Schools, Denver, Colorado, for coöperation and assistance in adapting school buildings to the platoon organization.

Finally, the author wishes to acknowledge a very direct obligation to Frank Cody, Superintendent of Schools of Detroit, and to the members of the Board of Education of Detroit, whose sympathetic attitude toward progressive innovations has made the reorganization of the Detroit elementary schools possible.

C. L. S.

Detroit, Michigan,
May 12, 1924.

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CHAPTER I

EVOLUTION OF THE ELEMENTARY SCHOOL CURRICULUM

I. European Beginnings

The curriculum reflects changing needs and ideals. At every stage of its evolution, the curriculum of the elementary school [1] has reflected the changing needs and ideals of society. The school is under constant pressure from individuals and organized groups who seek to expand and modify the curriculum in response to real or imaginary social needs. In this manner various influences, religious, educational, social, and industrial, have from time to time brought about changes in the subject matter of instruction. While the school as an institution has been conservative and has responded tardily to progressive changes in other fields of life activity, it is nevertheless true that the evolution of the curriculum parallels closely the evolution of society itself.

The elementary curriculum as established in Europe

[1] Throughout this discussion the term "elementary school" is used to indicate a school established primarily for the instruction of pre-adolescents, and secondarily to give children command of the vernacular language and literature together with those knowledges and skills which are universally recognized as fundamental in education.

up to the early part of the seventeenth century was a resultant of two influences. First, the commercial ideals which permeated the schools during the latter part of the middle ages had resulted in the establishment of writing and reckoning as worthwhile subjects for study. Second, as a result of the religious ideals which controlled education after the Protestant Reformation, reading became the foremost subject to be taught in the schools. Under the influence of these two ideals, reading and writing became the outstanding subjects, and spelling and arithmetic were sometimes taught. In Lutheran lands the course of study was further enriched by the inclusion of singing. In all Protestant countries at the time of the colonization of North America, the curriculum of the elementary school was narrowly religious in its aims.

II. American Colonial Schools of the Puritan Period, 1620–1775

First American schools religious in purpose. The immigrants who formed the human tide which set in toward the shores of North America in the early part of the seventeenth century naturally brought with them their home institutions and their own ideals of religion, government, and education. Thus several types of elementary schools developed in the American colonies in harmony with the standards of the people who founded them. But the great and predominant purpose of education in all of the early colonies was a religious purpose. Children must learn to read in order that they might at first-hand understand the Bible and

other religious writings. This aim overshadowed all others.

The narrow curriculum of the Puritan elementary schools down to the time of the Revolutionary War was merely a reflection of the Puritan's life. His interest in religion was intense and overpowering. On the other hand, he was indifferent to the fine arts, if not openly opposed to them, and his interpretation of natural phenomena was based upon ignorance and superstition.

The general tone of the colonial curriculum is suggested by the textbooks in use before 1775. Every child began to learn to read from the *Hornbook*. He then progressed through the catechism and the Bible. In 1690 a book appeared which was destined to become very popular and to exert a marked influence on elementary education. It was called the *New England Primer*. This book of eighty-eight pages, which contained material of a religious nature, served well as a preparation for the Psalter, the Testaments, and the Bible, and also as a vehicle for teaching some spelling.

In teaching writing and arithmetic, a textbook was seldom used. In the colonial period, arithmetic was not a required subject and often was not taught at all. It was presumed to be very difficult and few teachers were thought competent to teach it. A teacher who was a good " arithmeticker " was highly reputed. No printed textbooks in arithmetic came into use until about 1750. Writing also was taught by dictation and practice. The " scrivener " was thought to possess a difficult and elaborate art. The fact that it was so difficult to learn to write, that paper was so expensive,

and that the accomplishment itself was of so little practical value to most children, tended to minimize the importance of writing in colonial times, and often it was indifferently taught.

Tendencies after 1750. It has been shown that the meager and narrow curriculum of early colonial times developed in response to a dominant religious interest in the society of that period. After the middle of the eighteenth century, however, new and compelling interests arose which were soon to produce a marked change in the attitude of the people toward education, and ultimately to produce modifications in the curriculum itself. This changed attitude was due to a variety of causes. Old traditions were breaking down. European ideals and customs no longer satisfied. There was a growing individualism. Secular ideals were taking the place of religious ideals. The rising generation was becoming interested in commerce, industry, and the problems of contemporary life. Immigration was reducing the standard of literacy of the people and lowering religious ideals. All of these changes were affecting the character of education in the colonies. The development of schools distinctly American in type began in this period, but progress in this direction was checked by the devastating effect of the Revolutionary War.

In conformity with the new attitude, textbooks began to appear dominated by a secular rather than a religious motive, but all of the books of this time were of English origin. Although ideals and points of view were changing during the period from 1750–1775, the curriculum remained practically the same as in the earlier period.

CURRICULUM OF 1775

READING [1]
Spelling [2]
Writing
{ *Catechism* [3]
{ BIBLE
Arithmetic

[1] CAPITALS — Most important subject.
[2] Roman — Least important subject.
[3] *Italics* — Subject of medium importance.

— *Adapted from Cubberley*

III. The Period from 1775 to 1825

Education preceding the Revolution. The schools of the period preceding the Revolution were unbelievably crude and inefficient. There was little or no group instruction. Each child was called before the teacher for individual recitation, while the other pupils remained in their seats. There was a deplorable waste of time. A pupil frequently spent forty minutes of the school day in reciting, and three hundred minutes in sitting in his seat.[1]

Inefficient as the schools were before the Revolutionary War, they became decidedly more so during the period immediately following the struggle for independence. The war sapped the energies and resources of the people and turned their minds to things remote from education. In the critical period before the adoption of the Constitution, which was marked by political jealousies and turmoil, education rapidly declined. During the war itself many schools were closed entirely, and the unsettled conditions following the coming of peace prevented their reopening.

[1] BARNARD, HENRY, *American Journal of Education*, Vol. XXVI.

The first American textbooks. There was no extensive expansion of the elementary curriculum between 1775 and 1825, but the introduction of various new American-made textbooks served to improve the character of instruction in the subjects already in the curriculum and to broaden curriculum content.

In 1783 Noah Webster produced his "blue-backed" *Spelling Book*. This was a combined speller and reader, and its introduction marked an epoch in the teaching of both spelling and reading. The Webster book replaced the old *New England Primer* in many places, and served not only as a means of standardizing the spelling of English words, but also gave a vogue to spelling throughout the country and assured it a place of honor in the curriculum, which it has held ever since.

In 1794 Caleb Bingham published his *American Preceptor;* in 1806 the *Columbian Orator*, a book by the same author, appeared. These two books were in harmony with the democratic ideals of the time, and contained many patriotic orations of the heroes of the Revolutionary period. The *Columbian Orator* also included cuts showing how to stand, bow, and make gestures. These books helped to establish declamation as a subject in the curriculum.

Before 1800 Dilworth's *The Schoolmaster's Assistant*, a book on arithmetic, was widely used. In 1821 Warren Colburn produced his *First Lessons in Arithmetic on the Plan of Pestalozzi.*

In 1795 Lindley Murray's *Grammar* appeared, to be followed in 1799 by Bingham's *The Young Lady's*

Accidence. These books were popular and generally used, and thus a new subject, grammar, attained a place of prominence among school subjects.

With the publication of books on geography by Reverend Jedediah Morse in 1784 and 1795, this new subject attracted attention and was given a place among the approved studies.

The publication and use of American textbooks, superseding the English books of the Revolutionary period, not only gave strength to the idea that education and book learning are synonymous, but served to influence and improve methods of instruction, to increase or diminish the importance of subjects previously in the curriculum, and to add several new subjects to the course of study.

The introduction of new texts with an enriched content brought about a change in educational values and a shifting in emphasis. With the introduction of attractive reading material, both in prose and poetry, reading became a popular study. This material in turn stimulated recitation and public speaking. Spelling and arithmetic, through the excellent books by Webster and Colburn, rose to places of first rank. Writing in this period fell to a secondary place. The Bible as a text almost disappeared, but the spirit of Bible reading and religious instruction remained in the curriculum under the title of "Good Behavior or Morals and Manners." It is probable, too, that bookkeeping, together with sewing and knitting, was found in the curriculum of 1825. These subjects were added for practical and social reasons.

CURRICULUM OF 1825

READING [1]*	Bookkeeping [2]
Declamation [3]	GRAMMAR
SPELLING *	Geography
Writing	Sewing and Knitting
Good Behavior	
Morals and Manners	
ARITHMETIC *	

[1] CAPITALS — Most important subject.
[2] Roman — Least important subject.
[3] *Italics* — Subjects of medium importance.
* New methods of teaching now employed.

— *Adapted from Cubberley*

IV. THE PERIOD FROM 1825 TO 1850

A beginning of history study. A new subject which was formally accorded a place in the curriculum during the first part of the nineteenth century was history. Some historical material had been introduced in the early readers and geographies. In 1822 Goodrich published *A History of the United States.* It was very popular, and one hundred fifty thousand copies had been sold before 1832, when Noah Webster published his *History of the United States.* Webster's book contained a study of the Constitution of the United States, and marked the beginning of the study of civics in elementary schools.

The output of American textbooks during the period from 1775 to 1832 had a tendency to determine definitely the elementary subjects. As early as 1830 many of the larger cities had developed the curriculum as it stood until 1860. In the early thirties means of communication were few, and ideas spread slowly; consequently, certain materials of instruction were accorded

a place in the curriculum in some parts of the country long before they were accepted in others. History and geography were opposed by some people in those days much as music, art, and physical education have been opposed in recent times on the ground that they take time from arithmetic and grammar. The subject matter of both geography and history furnished good material for the children of the upper grammar grades and aided in the extension of the elementary course.

The first teachers' association. In 1829 the American Institute of Instruction,[1] the oldest teachers' association in the United States, was formed. It enrolled many of the foremost educators of the time, its leaders had a vision of the possibilities of the future, and its influence in education was felt for many years.[2] The first address delivered before the Institute was on "The Importance of Physical Education."[2] In 1834 and again in 1838 this organization recommended the introduction of vocal music in the public schools. In 1836 a voluntary instructor of music was employed in Boston. It was the first instance of instruction of this sort in American elementary schools, but the experiment failed, and the general introduction of music did not come about until over a quarter of a century later.

Physical education was not included as a part of the regular curriculum in Boston until about 1870. Soon after that date, however, this subject began to appear in courses of study in a number of places; but it was not given general recognition until a much later period.

[1] MOORE, E. C., *Fifty Years of American Education*, page 14.
[2] *Ibid.*, page 14.

CURRICULUM OF 1850

READING [1]	Bookkeeping
DECLAMATION	Elementary Language
SPELLING	GRAMMAR
WRITING	*Geography* [3]
Manners [2]	U. S. History
Conduct	Object Lessons
MENTAL ARITHMETIC *	
CIPHERING	

[1] CAPITALS — Most important subjects.
[2] Roman — Least important subjects.
[3] *Italics* — Subjects of medium importance.
* New methods of teaching now employed.

— *Adapted from Cubberley*

V. The Period from 1850 to 1875

Influence of Pestalozzi. In the decade preceding 1850 and for ten years thereafter more or less interest was shown by American educators in the philosophy and methods of the Swiss reformer Pestalozzi. People immigrating to this country from Europe were familiar with his ideals as worked out in foreign lands. Americans who traveled in Europe returned filled with enthusiasm for his theories and methods. Henry Barnard and other influential American educators published pamphlets in which the new vision of education was revealed. Teachers themselves had glimpsed the practical side of Pestalozzian methods in Colburn's arithmetic. The introduction of the new *infant school* in the early part of the nineteenth century had brought with it an attitude toward elementary instruction which harmonized in a degree with the new philosophy. In spite of these early evi-

dences of interest in the progressive educational movement in Europe, the theories of Pestalozzi produced no general change in American practice until 1860.

Before that time there was no evidence of a clearly defined philosophy underlying American elementary school procedure. The aims of education had been shifting under the influence of dominant social, industrial, and religious forces. Few people realized the possibilities of training in terms of either the individual or of society. The sciences of psychology and sociology were yet unformed. All teaching was based upon opportunism and immediate needs. No scientific technique of instruction had been developed. So it may be surmised that an educational world thus hampered and circumscribed was ready to welcome with enthusiasm the Pestalozzian wave of 1860.

The introduction into American schools of Pestalozzian ideals and methods was of great significance. It gave a new purpose to educational effort. It redirected and revolutionized both curriculum and methods of instruction. It offered a psychological basis for classroom methods. It gave us the beginnings of a modern educational philosophy, and a scientific technique of instruction, without which the training of progressive, efficient teachers is impossible.

Pestalozzi, borrowing many of his ideas from Rousseau, had a prevision of the best ideals and practices of the twentieth century. The impetus which his influence gave to American education still carries on, and many of his ideals interpreted in terms of present-day life and thought still inspire our efforts.

The contribution of the Swiss educator not only en-

riched and gave new meaning to the subjects already in the curriculum, but by developing a new point of view and a new attitude toward instruction made entirely new subject matter necessary.

That phase of Pestalozzian procedure which has most profoundly influenced American education is the objective and oral method of instruction. The substitution of observation and oral expression for the study of books and memoriter recitation has revolutionized methods of teaching in elementary schools. Observation in the natural world made possible the study of elementary science and home geography. Talking about things observed led to the study of language as a means of expression, as distinguished from grammar. Observing and counting objects opened the way to a new type of primary arithmetic.

As a net result of the Pestalozzian influence upon the curriculum as it stood in 1875, reading still remained a prominent subject, but its purpose and character were changed somewhat by the new influence; spelling retained its prestige and vogue; penmanship, influenced by the new methods, was more widely taught and emphasized; conduct as an inheritance of the old religious influence in the curriculum still held a place; arithmetic as taught under the Pestalozzian plan was more firmly established, and mental arithmetic for primary grades became popular; grammar still was one of the fundamentals, but the subject of oral language had found a place and its more rational methods tended to detract somewhat from the popularity of grammar; geography, which before 1830 had been considered a subject of little importance, now reënforced by the

new subject of home geography, advanced to a place of honor in the curriculum. United States history and civics, which were not generally taught previous to the Civil War, were advocated as a means of teaching patriotism; object lessons, taught in isolated instances in the previous period, became general in curricula throughout the country; and elementary science as a phase of object teaching became popular after 1871.

The beginning of school instruction in drawing and music. In 1869 a group of manufacturers of Massachusetts petitioned the legislature to direct the State Board of Education to report "some definite plan for introducing schools for drawing, or instruction in drawing, free for all men, women, and children in all of the towns of the Commonwealth of more than 5000 inhabitants." The argument was advanced that some knowledge of drawing or design was necessary for a skilled workman and that the neglect of this subject in the schools was indicated by the fact that "foreign workmen occupy the best and most responsible places in our factories and workshops." A law authorizing the teaching of drawing was passed in 1870, and a supervisor of drawing was imported from England. In the same year drawing was taught in Ohio. From this date the teaching of drawing in schools spread to other parts of the country.

In 1870 music was universally taught in Boston schools,[1] and to a limited extent in New Hampshire and Iowa.[1] Physical education was also a part of the regular curriculum in Boston at this time. Under the influence of the new philosophy of education, music and physical education began to appear in a number of

[1] Moore, E. C., *Fifty Years of American Education*, page 40.

places, but were not as yet subjects of general interest.

CURRICULUM OF 1875

READING [1]
Literary Selections [3]
SPELLING
PENMANSHIP *
Conduct [2]
PRIMARY ARITHMETIC
ADVANCED ARITHMETIC
Oral Language *
GRAMMAR
Home Geography *
TEXT GEOGRAPHY
U. S. HISTORY
Constitution
Object Lessons *
Elementary Science *
Drawing *
Music *
Physical Exercises

[1] CAPITALS — Most important subjects.
[2] Roman — Least important subjects.
[3] *Italics* — Subjects of medium importance.
* New methods of teaching employed.

— *Adapted from Cubberley*

VI. THE PERIOD FROM 1875 TO 1900

The influence of Froebel. As we have seen, the curriculum of the elementary school was subjected to radical reorganization in the decade preceding 1875. During the fifteen years following that date, when the influence of the great Swiss reformer was changing the theories and methods of the elementary school, a new force began to be felt in the educational life of America.

Friedrich Froebel, a follower of Pestalozzi, during the period from 1816–1852 conducted experimental schools in Germany. Out of his practical experience he evolved a new educational unit, the kindergarten, and gave to the world a new educational philosophy.

Froebel borrowed from both Rousseau and Pestalozzi, and his theories supplemented and made more effective the ideas of the latter. He embodied in practice two

theories which have been exceedingly powerful in shaping our point of view and in determining our procedure. First, he advanced the principles of self-expression and self-activity, which gave emphasis to the dynamic aspect of ideas, and to motor expression as a means of learning. Secondly, he advocated the idea of social participation as a means of education. He felt that coöperative effort is necessary, and realized that a child instinctively tends to coöperate and that this tendency should be noted and developed in infancy. The ideal of social participation appears less prominently in Froebelian writings than do his other theories, but he seems to have had a glimpse of the social viewpoint in education which has become so prominent in the twentieth century.

Froebel's principal contributions to elementary education were the kindergarten, play, and manual activities. In the kindergarten the outstanding idea is self-activity directed toward social and moral ends. He recognized that children are naturally self-active, and that they must have an opportunity for self-expression through play. In harmony with this idea, the kindergarten brings to the child stimulating experiences from the fields of music, art, literature, and nature, and gives him the opportunity and materials for motor expression.

Froebelian theories have penetrated to the primary grades and have done not a little toward rationalizing the teaching process in the grades immediately following the kindergarten. Coupled with the Pestalozzian idea of observation and experiment, as opposed to the memoriter methods of earlier days, the Froebelian

theory that education chiefly comes through self-activity has furnished a new point of departure in all instructional effort.

To the idea that play is of value as a means of physical development, Froebel added the thought that play is necessary to the complete unfolding of a child's instinctive characteristics. The prominence which he gave to expression as a means of development stimulated interest in the subjects of music and art, and tended to make the teaching of these subjects more rational.

To Froebel cannot be assigned the full credit for the introduction of manual training into the curriculum. His influence came partially through the fact that the kindergarten stands for manual activities, and partially from the consideration that the Sloyd system, which later was a factor in the manual training movement in the United States, was organized through his influence.

The introduction of manual training into the United States [1] came as a result of the Russian exhibit at the Centennial Exposition at Philadelphia in 1876. This work was first introduced in high schools.

Manual training for elementary schools developed in the form of " busy work " in the early primary grades, and in the form of experiments to determine a type of manual activity suited to the seventh and eighth grades. A class in manual training was organized privately in Boston in 1882. In 1888 the city took over this work.

The influence of Herbart. On the threshold of the twentieth century still another foreign influence appeared which produced some marked changes in the curriculum. This influence came through the Herbar-

[1] Moore, E. C., *Fifty Years of American Education*, page 58.

tian movement which aroused much enthusiasm about 1890. Johann Friedrich Herbart, a German teacher and an admirer and follower of Pestalozzi, lived from 1776–1841. He developed a new psychology and philosophy of education as well as a practical pedagogy.

Pestalozzi had looked upon education as a means of individual development, but the progress of industrial and social evolution was gradually shifting the center of gravity from the individual to society. Herbart was one of the earliest educators to recognize this trend. He set up morality and character as aims in education, and urged the preparation of children for a life in organized society.

As a result of the Herbartian influence, literature and primary grade history were added to the curriculum; textbooks and courses of study began to provide literature adapted to the interests and needs of children in the earlier as well as the later years of the grammar school; historical biography was introduced into the lower grades, and the social and industrial aspects of grammar-grade history received greater emphasis.

The curriculum of 1900. The curriculum of 1900, in its essential elements, did not differ materially from the curriculum of 1924. The trend of educational thought as exemplified in the curriculum of 1900 reflects the ideals of Rousseau, Pestalozzi, Froebel, and Herbart, modified and readapted to meet the requirements of twentieth century society.

In this curriculum, reading and literature were recognized as of first importance. Spelling and writing did not stand out so prominently as in the previous periods, but had a place more nearly commensurate with their

social value. Arithmetic, redirected through the influence of the modern viewpoint, still received consideration out of proportion to its life value.

Oral language had come into its own, and formal grammar, which for so many generations contested with arithmetic for the lion's share of time and attention, began to assume a place in the background. Geography, with a new social viewpoint and enlarged to include home geography, stood out with history as a social science. History, with new emphasis on things socially vital, became one of the fundamentals of elementary education. Nature study, thanks to the Pestalozzian idea of observation and experiment, had a firm place in the lower primary grades. The leisure-time subjects — music, art, and physical education, together with play — were given deserved recognition. Manual and domestic arts also became firmly fixed.

CURRICULUM OF 1900

READING [1] *	*Nature Study* *
LITERATURE *	Elementary Science
Spelling [3]	*Drawing* *
Writing *	*Music* *
ARITHMETIC	Play
ORAL LANGUAGE	Physical Training *
Grammar	Sewing
Home Geography [2]	Cooking
TEXT GEOGRAPHY *	Manual Training
History Stories *	
TEXT HISTORY *	

[1] CAPITALS — Most important subjects.
[2] Roman — Least important subjects.
[3] *Italics* — Subjects of medium importance.
* New methods employed.

— *Adapted from Cubberley*

VII. Twentieth Century Tendencies

Influence of Dewey. Educational progress in the twentieth century has been a resultant of forces set in action in various ages in the past, plus new forces generated and made effective amid the complex conditions of present-day social and industrial life.

Rousseau in the eighteenth century held that education is life and that it begins and ends with the individual. Pestalozzi, following in his footsteps, saw that individual growth must come from within through a child's observation and sense-perception, not through mechanical memorization. Froebel, who had a truer conception of the problem, realized that the starting point in education is a child's inherent tendency to act, and that the curriculum must be an epitome of world experience. He also believed that the human infant must come into his racial inheritance through social participation. Herbart's aim was to develop personal character as well as social usefulness, and his followers organized a scientific technique of instruction and set up certain principles of curriculum making.

At the opening of the twentieth century, John Dewey began to interpret contemporary social and industrial changes in terms of a new philosophy and a new psychology. In his book *The School and Society*, published in 1899, he proposed the theory that " the school should be life, not a preparation for life." Through the instrumentality of an experimental school he sought to demonstrate that it is possible to order the curriculum and the work of the school in such a way as to make it a miniature of life. He maintained that the end of

education is social efficiency, which a child can acquire to a degree in school through simplified life experiences. His philosophy gave to the curriculum and the school organization a practical aspect, and widely expanded the scope as well as changed the nature of school activities. He gave emphasis to the active rather than the passive side of experience. He urged coöperation and social service as fundamental virtues to be inculcated by the school, and demanded that training develop in children initiative, vision, and responsibility as preparation for democratic citizenship.

Dewey in his monograph, *Interest as Related to Will*, undertook to harmonize the ancient theory of education as effort or discipline with the modern theory of education as a natural process determined by the child's interests. Since the middle of the eighteenth century a reaction has been under way against the old theory that it matters little what a child studies, as long as he dislikes it and it requires on his part strenuous effort. In many instances the pendulum has swung to the extreme and the utilization of interest as a motive has been carried to the point of absurdity. Dewey sought to reconcile the two theories. He contended that —

> Because interests are something that have to be *worked out* in life and not merely indulged in themselves, there is plenty of room for difficulties and obstacles which have to be overcome, and whose overcoming forms "will" and develops the flexible and firm fibre of character. To *realize* an interest means to *do* something, and in the doing resistance is met and must be faced.

Dewey's philosophy, which in some respects approximates the social participation theory of Froebel, has given the keynote to recent educational thinking and

procedure. His study of the relation of interest to will or effort has stimulated study and experiment by others, and has resulted indirectly in important changes in method and material.

Influence of Thorndike. During the last twenty years educational theory and practice have been profoundly influenced by the psychological studies of Dr. E. L. Thorndike of Columbia University. Inspired by James, who conceived education as "the organization of acquired habits of conduct and tendencies to behavior," he experimented with animals and evolved a behavioristic psychology which he applied to men. As an outcome of his experimental studies, and influenced no doubt by both James and Dewey, he developed a psychology of education, and formulated the *laws of learning*. Thorndike also took issue with the doctrine of formal discipline and gathered and published experimental data to show that the transfer due to training is more restricted than it was formerly thought to be. As a result of his studies the materials of instruction have been appraised anew in terms of social rather than disciplinary values.

The most significant movement inaugurated since the opening of the present century has been the development of a scientific attitude toward the problems of education. School methods have for generations rested upon tradition and opinion. In very few instances, before the end of the nineteenth century, was the selection of materials of instruction or the determination of classroom method derived from experimental data.

For several decades, the scientific spirit has been

gradually modifying methods in the fields of business, industry, and the professions. It was inevitable that sooner or later schoolmen should tire of groping in the dark and seek the lamp of science to light them on their way. This century has seen this come to pass, and now, more and more, intelligent administrators and teachers are depending upon scientific research to blaze the path toward desired goals.

The great power behind the scientific movement has been and still is Dr. E. L. Thorndike. Through experiment and research, he developed a statistical technique by which the products of instruction may be measured. He devised measurement tests and scales, and inspired his students, Courtis, Ayres, Gates, and others, to carry on the work. This movement, opposed as might be expected by those who see in it a tendency toward materialism and an effort to crush out the higher things in education, is gaining ground steadily, and its universal acceptance can only be a matter of time.

Contributions of other modern educators. The two dominating forces, then, in present-day education are the social philosophy of Dewey and the psychological principles formulated by Thorndike. Recently, however, other educators, notably Kilpatrick, Courtis, and Coursault, have restated the aims of education as modified by the new social philosophy and behavioristic psychology. These students of education give full sanction to the ideals of Dewey and to the laws of learning as stated by Thorndike, but give emphasis to the fact that in the individual the source of all ideas of worth and value is in the

emotions. In recognition of this truth they emphasize education as *purposing*. Kilpatrick advocates "learning through felt purposes." He believes that the school should furnish children opportunities to purpose, to plan, to execute, and to judge of their results. To this end he would have the curriculum consist of an array of projects to be attained. To quote Kilpatrick[1]:

> A project is an instance of activity or experience carried on under the dominating purpose of the agent; that is, of the doer and learner. . . . It is the learner that concerns us, the learning that is to come from his doing, his experience. . . . Note, however, that it is the purpose of the learner that counts.

Courtis[2] says:

> In everyday life the combination of the rational and emotional processes results in the formation of purposes and gives rise to activities designed to achieve those purposes. Therefore, the new education may be defined as the process of helping children to help themselves. Its functions are to teach children:
>
> *A*. To form ever more worthy purposes.
>
> *B*. To achieve those purposes ever more efficiently.
>
> In such a conception of education, knowledge and skill are relegated to their proper place. They are regarded as means to an end, not as ends in themselves.

Coursault[3] holds:

> The larger factors in human development are (1) the social factor, which determines the purposes and ideas available for controlling conduct; (2) the individual factor, in which these purposes and ideas are realized; (3) the educational factor, which unites the other two by providing conditions favorable to the development of social purposes and ideas in the individual life.

This new conception of the aim of education in terms of both the individual and society, reënforced by recent

[1] *Detroit Journal of Education*, Vol. I, page 29.

[2] *Ibid.*, Vol. II, page 3.

[3] *The Principles of Education*, page 25.

scientific and psychological thought, is now slowly but surely working changes in educational purposes and methods. As a result of all of the factors, social, industrial, and educational, that are influencing the development of the curriculum, the present tendencies may be classified under three captions — *Socialization*, *Vitalization*, and *Individualization*.

Socialization. Socialization assumes the introduction into the curriculum of group activities which bring pupils into contact with real life experiences. It means that the child's experiences in the home shall be carried over into the school and related to and interpreted by his school experiences. Conversely, it means that the school experiences shall carry over into the home, the workshop, and the broader outside life, and be usable there at their full social value. The socialized curriculum must have in view both the individual and the society in which he lives. It should help him to select suitable patterns for his purposes and make available for him the materials and experiences which shall enable him to realize these purposes. In attempting to conform to the new social aims, the curriculum opens its doors to every aspect of experience that may make for the development of socially efficient individuals. The socialized curriculum of 1924 endeavors to provide experiences which touch every phase of child nature. It makes room for the traditional three R's, for health, for vocation, for citizenship, for leisure time, for worthy home membership, and for ethical training.

Vitalization. Vitalization appraises the content of the curriculum on the basis of social values. Mate-

rials formerly justified on a formal discipline basis must now prove their life value or be excluded. The application of this principle eliminates obsolete and useless subject matter from both curriculum and textbook. In the light of the new test of values much of the old material is found to be worthless. The educational pabulum which remains must have in it the elements of real life interest and must function in the social activities of the pupils.

Individualization. The most important outcome of the scientific study of child nature has been the discovery of the meaning of individual differences. It has always been known that children differ in many ways, but the significance of this variability in its relation to the learning process was not understood until recent times. A child inherits a certain mental capacity. His ability to perform is equal to this capacity plus the effect of his environment. Nature seems to place a final limit on capacity and beyond this it is probable that no amount of education will avail. Instruction must of necessity proceed with large groups. The largest factor in an individual's progress seems to be his capacity to respond to the instruction which he receives. As a result of this situation there is great overlapping in every class. A sixth-grade class in arithmetic may include some pupils with ability as low as that of a third-grade pupil, and others of high school range in ability. Uniform instruction to a group of this sort seems only to increase the variability. Scientific research and experiment are now developing a technique by which we can have individual mass instruction. By the utilization of scales and stand-

ards of achievement, pupils may measure, appraise, and record their own progress, and each individual may therefore proceed at his own rate.

VIII. The Curriculum of the Future

Tendencies of the present day. In contemplating the future of the curriculum, certain marked tendencies are clearly apparent. Scientific studies will make possible a more accurate diagnosis of individuals. Methods and devices will be discovered or invented which will permit of individual progress and direction in all of the knowledge and skill subjects. Such devices are now available in penmanship, arithmetic, reading, and spelling, and others are rapidly being produced. In a socialized school much of the motivation for the skill and knowledge learning will grow naturally from other school activities.

The probable future. In socializing the curriculum by bringing into it a wide range of experiences related to many phases of life, the boundary lines between subjects will tend to become obliterated and subjects as such, except as related to skills and knowledges, will probably disappear. In their places may be found a series of social activities which are related to child life in and out of school, and children will have an opportunity to set up goals, do their own purposing, and struggle for achievement, in harmony with child ideals.

CHAPTER II

EVOLUTION OF THE ELEMENTARY SCHOOL ORGANIZATION

I. European Schools of and after the Reformation Period

Reading schools. While the germs of modern elementary school organization possibly may be found in the "writing and reckoning" schools of the fifteenth century, it is undoubtedly true that our modern practice is more directly traceable to the principles involved in the Protestant Reformation.

Although the Reformation gave full sanction to the theory that ability to read is a desirable prerequisite to individual salvation, it must not be assumed that the old ecclesiastical system of education immediately broke down and was replaced by one which made possible the realization of the new religious ideal. On the contrary, the development of schools of the new type to take care of the common people was the work of many generations. In England, schools for elementary instruction in the native language appeared very slowly, but the Puritan ideal was strikingly exemplified in the schools founded by our English forefathers when they came to the shores of Massachusetts in the early part of the seventeenth century.

Dame schools and private adventure schools. In England the demand for instruction in reading, in the period following the Reformation, was in a measure satisfied by the *dame school* and the *private adventure* or *hedge school.* A dame school was a private school kept by a woman in her kitchen or living room. In return for a modest fee, she imparted to small children the rudiments of reading and spelling. The instruction was of the crudest and most inefficient sort. The private adventure or hedge school was similar to the dame school except that it was kept by a man, usually in his home or shop. These schools also were taught by tutors of an inferior type.

Thus, in the days before the Puritans came to New England, the responsibility for the instruction of the younger children was borne in part by religious or semi-religious organizations carrying over from the pre-Reformation era, and, in part, by private schools of various sorts conducted by inefficient and ignorant teachers. In general, the type of teaching exemplified in *writing and reckoning schools* prevailed in this period in one form or another, supplemented by meager training in dame schools or other post-Reformation schools established primarily to teach reading.

II. American Colonial Schools

Schools of foreign origin. From earliest colonial times down to our day, one of the large problems in American life has been the building up, from diverse and varied elements, of distinctly American types of institutions. This is in a marked degree true in the development of our elementary school organization.

The immigrants, who reached our shores from every part of Europe, brought with them the several types of schools with which they were familiar. The Dutch, Germans, and Swedes imported the parish school, which prevailed generally in Germanic lands. It was a modernized descendant of the old medieval religious schools. On the other hand, the English colonists, who came in large numbers in the early days, brought with them several of the types of organization to be found in their European home, including the dame school, the writing school, and various kinds of charity and apprentice schools.

Lutheran schools. While Lutheran parish schools continued to exist throughout the colonial period, they did not exert a marked influence on American education. It was from the types of schools transplanted to America by the Puritans of New England that the modern elementary school was finally evolved.

Puritan schools. The Puritans had scarcely landed in New England before they began to provide schools in which their simple curriculum with its overpowering religious purpose was taught, but school organization could not be said to have taken any definite form in the colonial period. The curriculum was meager; no adequate quarters for instruction were provided; and often, owing to the scattered settlements and the demand for some education in several places, the school organization became transient or rotating. However, after a long time, education began to be recognized in many communities as a public function, and the unit of education in rural districts became the one-room ungraded school.

III. Types of American Elementary Schools after 1750

The modification of school organizations. The same social and industrial influences which modified the curriculum after 1750 brought about changes in school organizations.

In New England there was a struggle to prevent schools in towns from disappearing entirely, and also an effort to establish district schools. The exigencies of the case were such that in rural districts and smaller towns the dame school, which was devoted principally to teaching reading, was combined with the writing school to form the school of the three R's, from which the American elementary school was evolved.[1]

Reading and writing schools. In cities, reading and writing schools were maintained. As far back as 1789 a Boston school committee, of which Samuel Adams was chairman, adopted the following plan:

In Town Meeting, October 16, 1789.

Voted, That there shall be one writing school at the south part of the town, one at the center, and one at the north part; that in those schools the children of both sexes be taught writing and also arithmetic in the various branches of (it) usually taught in the town schools including vulgar and decimal fractions. That there be one reading school at the south part of the town, one at the center, and one at the north part; that in those schools the children of both sexes be taught to spell, accent, and read both prose and verse, and also to be instructed in English grammar and composition. That the children of both sexes be admitted into the reading and writing schools at the age of seven years, having previously received the instruction usual at women's schools; that they be allowed to continue in the reading and writing schools until the age of fourteen,

[1] Cubberley, Ellwood P., *Public Education in the United States*, page 26.

the boys attending the year round, the girls from the 20th of April to the 20th of October following; that they attend these schools alternately, at such times and subject to such changes as the visiting committee in consultation with the masters shall approve.

A picture of the Boston schools as reorganized in 1789 is given by William B. Fowle, in his *Memoir of Caleb Bingham*, who was a Boston schoolmaster in the last decade of the eighteenth century. Mr. Bingham came to Boston to establish a school for girls, as no schools were open to them except private schools presided over by uneducated men teachers.

The Boston schools for girls. In 1789 there existed in Boston two writing schools and two Latin schools. Some of the selectmen in charge of the schools felt keenly the burden of paying taxes for public schools while at the same time they paid tuition for their daughters in Mr. Bingham's private school for girls. After deliberation, the officials solved the problem by instituting —

three new schools, to be called Reading Schools, in which reading, spelling, grammar, and perhaps geography, should be taught by masters to be appointed; the two old writing schools to be continued, a new one established; and one of the Latin schools to be abolished. As no rooms were prepared, temporary ones were hired, so that the same pupils attended a writing school in one building half the day, and a reading school in a different building, at a considerable distance, and under a different and independent teacher, the other half. Each reading school had its corresponding writing school, and while the boys were in one school, the girls were in the other, alternating forenoon and afternoon and changing the half day once a month, because Thursday and Saturday being vacation this arrangement was necessary to equalize the lessons taught in the separate schools.

Henry Barnard in his *American Educational Biography* says:

> Even when the town built new schoolhouses, the upper room was devoted to the reading school, and the lower to the writing, the masters never changing rooms. As no provision was made in the reading schools for any exercise in writing, no such exercise was required there. . . . The reading masters were found as incompetent to teach penmanship as the writing masters had always been to teach anything else.

A report of the Boston School Committee on the condition of the schools in 1845 shows that the same double-headed organization was still in effect.[1] This report deplores the fact that there were two masters with equal rank and pay, neither having exclusive control. At that time there were sixteen schools with thirty-two masters and sixteen ushers. Each master had charge of one half of the school in the morning and of the other half in the afternoon. The sixteen ushers worked both morning and afternoon.

This double-headed plan, which in some respects suggests the duplicate or platoon idea of today, prevailed in Boston until after the organization of the first graded school, the Quincy Grammar School, in 1848.

Lancasterian schools. In 1806 the Lancasterian monitorial system of instruction was introduced in America, the first school of this type being established in New York. The system soon became popular and was widely adopted in various cities and towns. The monitorial system made possible the instruction of from two hundred to a thousand pupils simultaneously by the employment of one teacher. While viewed in the light of current educational thought it

[1] CALDWELL, O. W., and COURTIS, S. A., *Then and Now in Education*, 1923.

seems mechanical and formal, it brought with it a plan of school organization and routine which was distinctly in advance of the type which had previously prevailed.

The Lancasterian system gave way to the graded school organization of today. Though it left little permanent impression, it cannot be doubted that its ideals of system, order, group instruction, and teacher training carried over into the schools which came later.

Infant or primary schools. In developing systems of elementary schools in American cities previous to the nineteenth century, no specific provision was made for training small children. In Boston, before they were permitted to enter the writing schools, pupils were expected to learn to read and write either at home or in dame schools.

In 1816 the infant school, an English importation, was introduced into this country. The infant or primary schools were taught the year round by women, who, at public expense, prepared children between the ages of four and seven to enter the reading and writing schools. A number of such schools were organized, as it was thought that one teacher could not well manage over fifty or sixty pupils and because children of this tender age could not conveniently attend school far from their homes. In New England, the infant or primary schools, which to a large extent absorbed the dame schools, from the time of their establishment in 1818 down to about 1848, were organized on the ungraded plan. Each school was a separate unit and usually occupied a separate one-room building. Pu-

pils were classified into six groups so that at one time a teacher would have under her direction a class of "A-B-C-darians," a class ready for the writing and reading schools, and the four intervening classes.

The graded grammar school. When Horace Mann and Henry Barnard, in the thirties and forties, led a campaign for the regeneration of American education, one of the reforms most urgently demanded was the formation of graded schools in which pupils could be grouped according to age and attainment.

As early as the beginning of the nineteenth century, progressive educators began to be dissatisfied with the inefficient methods of school organization then in vogue. In the writing and reading schools as many as 180 pupils ranging in age from seven to fourteen were seated in one room, under the charge of one master and several assistants. Often three teachers carried on recitations in one room at the same time. In the later years this situation was relieved by building recitation rooms adjoining the large halls.

In 1843 Horace Mann visited schools in Europe. In the *Seventh Annual Report of the Board of Education of Massachusetts*, published in 1844, he discussed the problem of classification as follows:

> The first element of superiority in a Prussian school, and one whose influence extends throughout the whole subsequent course of instruction, consists in the proper classification of the scholars. In all places where the numbers are sufficiently large to allow it the children are divided according to ages and attainments, and a single teacher has charge only of a single class or of as small a number of classes as is practicable. . . . Let us suppose a teacher to have charge of but one class, and to have talent and resources sufficient properly to engage and occupy its attention, and we suppose a perfect school. But how greatly are the teacher's duties increased

and his difficulties multiplied if we have four, five, or half a dozen classes under his personal inspection. There is no obstacle whatever save prescription and that *vis inertiae* of mind which continues in the beaten track because it has not vigor enough to turn aside from it, to the introduction at once of this mode of dividing and classifying scholars in all our large towns.

Although in the light of our twentieth century experience, the organization of the reading and writing schools seems indefensible, it did not appear that way to the Boston schoolmasters, who tenaciously held to the traditional methods. Finally, however, in 1848, two new grammar school buildings were erected in Boston. One, the Bowdoin School, was three stories high and built on the traditional plan with large halls. The second, the Quincy Grammar School, was four stories high. On the first three floors the large halls were replaced by twelve small rooms of uniform size. The principal, Mr. John D. Philbrick, a man of vision, seized upon this opportunity to organize his school on the graded plan. The school was divided into four classes of 168 pupils each with three divisions in each class. In each of the twelve small rooms a teacher taught a class of 56 pupils graded according to age and attainment. This was probably the first graded school in America and its establishment is an event of great import, because, with minor changes, it was typical of the grammar school organization of today.

Primary schools as organized before 1856 were ungraded, but the curriculum was divided into six steps or classes. As soon as the graded system in grammar schools gained in favor, there was a tendency to extend it to the primary schools. Thus instead of having one primary school with six classes, each primary school

gave instruction to one grade or class. As a result, at the end of each half-year, a pupil was promoted from one school to another school having the next higher grade. In this way the primary schools in a given locality came to have an organic relation, and the need for supervision of transfers, promotions, and attendance arose. This need began to be keenly felt about 1848, just at the time that Boston was shifting from the double-headed organization to the graded grammar school plan. The master of the grammar school was relieved of all teaching and given supervision over the grammar school and the neighboring primary schools. Thus we have the evolution of the grammar school principal.

The complete elementary school. The final step in the evolution of the elementary school organization was to gather together,[1] on the lower floor of the grammar school, pupils from the six scattered primary schools. In Boston the grades preceding the high school came to be known as the primary and grammar grades. In some other localities the terms *primary*, *intermediate*, and *grammar* were adopted. In Detroit there were at first two grades of public schools, primary and middle. In 1849 the union system of organization was adopted, under which primary and middle schools were housed under one roof. In 1858 a uniform system of grading was provided. In 1873 the elementary school included the first nine grades, but in 1876 the ninth grade became a part of the high school.

[1] In Providence and Philadelphia the primary grades were housed on the lower floor of buildings before the graded school system was introduced.

IV. Modifications in Elementary Organization in Response to the Expanding School Curriculum

Departmentalization. In the days when the dame school flourished, the teacher gathered a group of children about her and imparted to them the rudiments of an education. When regular schools were organized the teacher in the beginning was obliged to teach the limited curriculum to children varying considerably both as to age and ability. In the "halls" of the reading and writing schools the number under the direction of one teacher was often very large.

With the coming of graded schools the teacher's task was made easier, because she gave her instruction to a fairly homogeneous group, but the rapid expansion and enrichment of the curriculum during the latter part of the nineteenth century and the early part of the twentieth has made the problem of the teacher more serious. In the earlier periods when only reading and writing with a little arithmetic and grammar were required, each instructor could be in a sense a specialist. With the addition of history and geography to the curriculum her responsibilities became considerably heavier. With the introduction of music, drawing, and physical education, she was expected to become a specialist in each subject in turn. As a result the task of the teacher became continually more burdensome. In attempting to teach the new subjects with which she was unfamiliar, she relaxed her efforts in the fundamentals and the results in the three R's became less satisfactory.

As a means of relieving this situation educators

turned reluctantly to a principle of action which was already working successfully in industry, the principle of the division of labor. It was proposed that teachers become specialists in the subjects which they felt themselves best prepared to teach. As music, art, physical education, manual training, and domestic art and science became more highly specialized, it was necessary to secure teachers who were trained in these subjects. The fundamental subjects together with geography, history, and English were divided among the regular teachers who could present them most effectively.

This scheme of departmentalization developed much opposition at first, and even now is not approved by those who believe that teaching is a personal matter between teacher and pupil, and that the most valuable factor in education is the personal influence which an individual teacher exerts on the pupil. The social point of view in education, which means that a child shall get experience through social participation, suggests that it is best for him habitually to adjust himself to various personalities as he will have to do in life out of school. There is a real advantage in having a pupil work daily with several teachers. If they are efficient and worthwhile, each will appeal to him and stimulate him in a different way. If some of them are mediocre, as is sometimes the case, his contact with them is brief and the consequent loss to him is less than it would be were he under their direction all day.

The real danger of departmentalization lies in the fact that specialization among teachers may result

in the disintegration rather than the integration of the pupils' experience. It is possible that instruction under different teachers may tend to become pigeonholed so that the child may not realize that all experience has unity and is related. The modern idea of greater initiative and self-direction on the part of children, with a technique which permits them to progress individually in the tool and knowledge subjects, supplemented by group experiences in which various types of life problems or projects are met, will tend to minimize the danger of disintegration. Children's experiences will then be related, because we shall no longer be teaching subjects as such, but giving pupils purposeful social activities to perform which in themselves may serve to unify experience.

Departmentalization in the traditional school has several disadvantages. In the first place, it can only be a palliative, not a cure, for the condition which exists. As commonly employed, it is expensive. If we employ special teachers of art, music, and physical education who go from room to room in a building or who teach groups of pupils in special rooms during the entire day, there is duplication of teacher service or loss of instructional space, or both. Furthermore, the rooms of the ordinary grammar school building are not adequate for the presentation of art, nature study, physical education, or the socializing activities which require special facilities. This fact is being recognized more and more and such facilities are being included in school plants, but with the traditional organization, even if departmentalized, there is excessive cost, and loss of much space which might in-

crease the capacity of the school if properly used. What the situation demands is not a curative nostrum but a surgical operation. The new curriculum of 1924 will not function through the old school organization of 1848, even with the aid of departmentalization.

The Gary schools. Educators are traditionally conservative. Therefore, modification in school procedure always lags far behind innovations in educational thought. The twentieth century brought with it the socialized point of view, which is gradually permeating the educational mass and resulting in improved methods of instruction as well as better forms of school organization. Generally speaking, the old grammar school type of organization, or some modification of it, is still strongly entrenched, and administrators who are attempting to teach the modern socialized curriculum with the traditional organization are trying to put "new wine into old bottles." There is, however, at the present time a gratifying tendency toward reorganization in many cities in scattered localities throughout the country. This inclination to readjust comes partly from a feeling that the old types of organization and building are inadequate for present needs, and partly from a desire to care for crowded conditions by increasing the housing capacity of buildings already in use.

Credit for the pioneer experiment in the readaptation of the school plant and organization to the modern curriculum belongs to William S. Wirt of Gary, Indiana. His experiment is especially noteworthy because it inspired the efforts of many other later experimenters. When Mr. Wirt took charge of the

schools of Gary he found a city which had little or no past and consequently no traditions. In this situation he was able to put into practice theories which he had previously tested in a smaller way in Bluffton, Indiana. Mr. Wirt maintains the theory that the chief factors in a child's education are work, study, and play, and that the school must provide for all of these activities if the child is to have a well-rounded education. The general scope of the Gary schools as stated by Mr. Wirt [1] is as follows:

> The twentieth century public school saves the taxpayers money by providing, first, classrooms and libraries where the child can study books and recite from books; second, playgrounds, gymnasiums, and swimming pools where the child can play and secure a general physical training; third, shops, gardens, drawing-rooms, and laboratories where the child can work and learn to do efficiently many things by doing them; fourth, an auditorium where by lectures, recitals, dramatization, phonograph, player-piano, stereopticon lantern, and motion pictures the visual and auditory education of the child may be done efficiently. Four separate and distinct places are provided for each child, but the total per capita cost is not increased fourfold. . . . Each child can be in only one of the four places at the same time. The new school so arranges the classes that different sets of children are in the four departments all of the time.

Some of the outstanding features of the Gary schools as summarized by W. P. Burris [2] are these:

(1) Better use of school buildings day and evening, including Saturdays, the year round.

(2) Better division of time between the old and new studies.

(3) Greater flexibility in adapting studies to exceptional children.

(4) Possibility of more expert teaching through the extension of the departmental plan of organization.

(5) Better use of play time.

[1] *N. E. A. Proceedings*, 1912, page 493.

[2] *U. S. Bureau of Education Bulletin*, 1914, No. 18.

(6) More realism in vocational and industrial work, by placing it under the direction of expert workmen from the ranks of labor.

(7) Better facilities for promotion of health.

(8) Possibility of promoting pupils by subjects instead of by grades.

(9) Possibility of having pupils help each other.

(10) Saving in cost of instruction.

(11) A plan which brings together, in a unitary way, with economy and efficiency in management, the other recreational and educational agencies of a city.

The feature of the Gary schools which has attracted the greatest amount of attention is the duplicate plan of organization which increases the capacity of the buildings. In fact so much has been said about decreasing cost and relieving crowded conditions, that the real purpose of the organization, namely the provision of a school in harmony with present-day requirements, has often been overlooked. The Gary schools represent an attempt on the part of Mr. Wirt to realize modern educational ideals in a concrete way. To accomplish his purpose he inaugurated an elaborate program of innovations which the test of a number of years has proved to be of value.

Platoon schools, Kalamazoo, Michigan. In 1915, in connection with the Cleveland survey, Mr. S. O. Hartwell published a monograph on *Overcrowded Schools and the Platoon Plan*, in which he discussed the practical working out in the schools of Kalamazoo, Michigan, of certain features exemplified in the Gary schools. To Mr. Hartwell the phase of the Gary organization of most value "consists of administrative adjustments through which all special rooms as well as all classrooms are used throughout the school day." This

duplicate form of organization he described as the *platoon plan*. The aims of this plan as worked out in the schools of Kalamazoo are stated to be —

(1) Better instruction and improved results in special branches without increased expense and without sacrificing the regular subjects of the curriculum.

(2) The filling of important gaps in the present curriculum without the increase in cost that often prohibits such additions.

(3) A more constant use of the whole school building and especially increased use of facilities usually considered "extras," such as auditoriums, gymnasiums, manual training rooms, and the like.

(4) A larger enrollment within the same building.

V. Reorganization of the Detroit Elementary Schools, 1918–1924

The problem. During the decade preceding 1918, Detroit was rapidly evolving from an overgrown town into a large cosmopolitan city. With the coming of greater Detroit, the smug complacency and conservatism which had characterized the city for many years disappeared and in its place arose a new progressive spirit in harmony with twentieth century ideals. The rapid broadening of Detroit's civic outlook was accompanied by a corresponding expansion of its educational horizon. The public school organization, for many years fairly conservative, in response to new social-civic demands became markedly progressive. For a number of years Dewey's social philosophy and Thorndike's educational psychology had influenced the ideals of Detroit's educational leaders. With the dawn of a new civic era, these ideals began to find fuller expression in modifications in the curriculum, in methods of instruction, and in school organization. In attempting

to readjust the elementary school system to meet the new situation, the following facts became evident:

(1) That twentieth century social and industrial life makes a broad and varied curriculum a necessity.

(2) That while our educational ideals, our curriculum, and our methods of instruction have been modified gradually in response to changing social and industrial conditions, and in harmony with the results of scientific research, we are still attempting to realize these modern ideals through a type of organization that was developed to meet conditions over seventy years ago.

(3) That, while the ideals of today demand that we shall not only train a child in the fundamentals of education, but also shall make an appeal to the social, ethical, physical, and vocational aspects of his nature, we are trying to attain these ideals in a type of school building which was adjusted to conditions existing before the middle of the nineteenth century.

The logical conclusion to be drawn from these facts is that, if the ideals of today are sound, and we have faith in them, the time is at hand when we must —

(1) Adopt a modern and more flexible form of elementary school organization.

(2) Erect buildings which shall be adapted to the purposes of the new organization.

Platoon school experiment in Detroit, 1918–1919. Prompted by the above considerations, when two new school buildings with auditoriums and gymnasiums were opened in Detroit in September, 1918, a modified type of organization was tried experimentally. In planning the new organization, the following aims were kept in mind:

(1) Some activity — work, study, or play — for every child, every hour of the school day.

(2) A school plant as nearly as possible 100 per cent efficient.

(3) Adequate time and suitable conditions for effective instruction in the three R's.

(4) Ample time and suitable physical environment for daily health education.

(5) Special teachers and facilities for instruction in health, music, art, literature, science, manual arts, and home economics.

(6) Development of the auditorium as a new socializing and correlating unit in the school.

(7) Establishment of a library as an integral part of the elementary school organization.

To obtain these objectives, a specialized form of the duplicate or platoon organization was developed and put in operation in two small buildings, the Maybee and Kennedy schools. These two schools were selected because they contained auditoriums and gymnasiums, which are a prerequisite to the Detroit type of organization.

Inasmuch as the buildings selected were being used for the first time, it was possible to begin the experiment with an entirely new corps of teachers in each school. Two open-minded, progressive principals were selected. They entered enthusiastically into the project. The corps of teachers selected in each school was divided into two groups, those who preferred to teach the fundamentals, and those who were interested in the various special subjects.

The experiment in both schools was a success from the start. The most striking outcome was the spontaneous and wholehearted endorsement which the new organization received from principals, teachers, pupils, and parents, and the consequent spread of a favorable sentiment throughout the system. It was presumed that the new organization would make its way slowly, and in the face of opposition. On the contrary the attitude developed was overwhelmingly favorable, and

within a few months the completion of additions to other buildings made possible the establishment of the platoon organization in four additional schools, Hely, Stephens, Russell, and Columbian. With the opening of the fall term in September, 1919, nine more schools, Wilson, Angell, Greenfield Park, Marxhausen, Greusel, Lincoln, Lingemann, Breitmeyer, and Newberry, were reorganized as platoon schools. At the end of a year it was evident that the new organization had met the approval of a great majority of the parents, teachers, and pupils concerned. In addition, a measurement of the results attained in the three R's showed that, even in the midst of reorganization and readjustment, the platoon schools were producing results in writing, spelling, arithmetic, and geography which were equal to those attained in the non-platoon schools.

Official adoption of platoon school organization. In preparing the annual school budget for the years 1920–1921, the Detroit Board of Education was confronted by a serious problem. Owing to the rapid growth of the city and the restraining effect of the war on all building operation, the housing capacity of Detroit schools was far below the requirements. Almost twenty thousand children were receiving only part-time instruction. To relieve the situation the appropriating bodies authorized the expenditure of approximately eight million dollars for new elementary schools and additions.

Before attempting to outline a building program, the Board of Education decided to formulate and adopt a general educational policy. As respects elementary

school buildings and organizations several questions arose:

(1) Was the Board justified in spending large sums of money to erect a type of building which was manifestly inadequate for the purposes of the modern curriculum?

(2) If schools with auditoriums, gymnasiums, libraries, and other modern facilities were to be built, was the Board justified in perpetuating an organization which utilizes only two-thirds of the capacity of the building?

(3) In view of the current trend in educational thought and practice, would it not be the part of wisdom to cut loose from tradition, and plan a new type of organization and a new type of building in harmony with the modern curriculum and the larger and more efficient use of the school plant?

In this crisis the Board of Education turned to the platoon school experiment. After careful consideration of all of the factors involved, it was decided to take a radical forward step, and the following resolution [1] was adopted:

That the educational needs of children of the kindergarten and the first six grades be met by building large elementary schools, with auditoriums and gymnasiums, planned definitely to satisfy the requirements of the platoon form of organization.

The passage of this resolution was epoch-making, in that it was the first instance in which the school authorities of a large city had officially adopted the platoon form of organization, and had planned a building program accordingly.

Since the new educational policy went into effect in 1919, the reorganization of the Detroit elementary school system on the platoon school basis has gone steadily forward. Data indicating the annual in-

[1] Resolution of the Detroit Board of Education, September 25, 1919.

crease in the number of platoon schools may be found in the Appendix, pages 233–256.

VI. The Detroit Platoon School Organization

Aims. The fundamental object of the platoon organization is to provide an administrative device by which all of the subjects in the present-day curriculum may receive proper emphasis, and may be presented under conditions that best make for the realization of the social aims of education.

To one who believes in a democracy, the aim of education is to enable each individual to develop to the fullest extent his individual powers while doing those things which are beneficial to society as a whole. Progressive educational thinkers are becoming daily more convinced that the big impelling motive in education is the social motive. All of our schools, elementary, intermediate, secondary, and collegiate, must in the future strive to realize more fully the seven great social aims of education. The platoon school does this in a marked degree.

The platoon organization makes ample provision for the health of its pupils through its gymnasium, its playground activities, its school clinic, its lunch room, and its auditorium lessons in hygiene.

It teaches the fundamentals, the three R's, as effectively as the conventional school has ever done.

It trains its pupils in the duties and responsibilities of citizenship and develops in them an enlightened social consciousness through the medium of its auditorium activities and its library period, supplementing the instruction in history, civics, and literature.

It prepares its pupils for worthy home membership through its vocational activities, through its provision for play and physical education, through its library, and through its auditorium. All of these afford opportunities for self-activity, self-control, and self-direction on the part of the pupils.

It arouses in its pupils vocational interests, and tests their aptitudes and tastes through the medium of its shops, its kitchens, its domestic art classes, and its mechanical drawing.

The platoon school, with its studio, its music room, its literature room, its auditorium, and its library, appeals to the cultural side of child nature, stimulates the child's imagination, and prepares him to spend his leisure hours worthily and happily.

Finally it may be conceded that all education should ultimate in the development of ethical character. This particular type of school, because it appeals to so many aspects of a pupil's nature, because it arouses a many-sided interest, because it offers such a variety of experiences, because it provides so many avenues for self-expression, and above all because it demands and requires so much from pupils in the way of self-control and self-direction, is the best type of school yet devised to develop ethical character.

A secondary purpose of the platoon plan is to develop an organization which shall not only effectively realize the ends of instruction, but which shall at the same time make the largest and most effective use of the school plant. The traditional grammar school organization cannot effectively realize either of these important purposes.

Plan of organization. The distinctive feature of the modern platoon or work-study-play school is the division of all of the school classes into two large groups, or platoons, alternating between the "home rooms," where the three R's are taught, and the rooms for special activities, where children receive training in the social, ethical, physical, and vocational phases of life.

For the ninety minutes, in which the classes of one platoon are in the home room receiving instruction in English, spelling, arithmetic, reading, and penmanship, the classes of the opposite platoon, for three thirty-minute periods, are found distributed among the activities of gymnasium, play, auditorium, social science, literature, art, music, library, and household arts. The alternating of the platoons in the middle of the morning and the middle of the afternoon divides a six-hour day into three hours of home room work and three hours of special activities for every child. With this duplicate plan, all the space and all the facilities of the school are brought into play at the same time, thus giving the benefits of all the departments to all of the pupils.

The following general schedule, showing the division of the day into home room work and special activities for each platoon, will illustrate:

The school day begins at 8 : 30. Groups in Platoon A go directly to the home rooms, where they remain until 10 o'clock, while groups in Platoon B have three thirty-minute periods of special activities. Both platoons change at 10 o'clock. Those in Platoon A then participate in special activities for three thirty-minute periods, while groups in Platoon B have ninety minutes of home room work. School is dismissed at 11 : 30. After one hour for lunch, Platoon A

groups report to their respective home rooms again for a period of ninety minutes, during which the B groups report in special classes for three thirty-minute periods. The platoons again alternate at 2 o'clock, A groups remaining in the home rooms for ninety minutes, and B groups in special classes until dismissal at 3 : 30.

The manner in which the day's activities are distributed between home and special rooms may be shown as follows :

TABLE I

PLATOON A		PLATOON B
8 : 30 to 10 : 00	Home Rooms	Spec. Rooms (8 : 30–9 : 00) Spec. Rooms (9 : 00–9 : 30) Spec. Rooms (9 : 30–10 : 00)
10 : 00 to 11 : 30	Spec. Rooms (10 : 00–10 : 30) Spec. Rooms (10 : 30–11 : 00) Spec. Rooms (11 : 00–11 : 30)	Home Rooms
	NOON RECESS	
12 : 30 to 2 : 00	Home Rooms	Spec. Rooms (12 : 30–1 : 00) Spec. Rooms (1 : 00–1 : 30) Spec. Rooms (1 : 30–2 : 00)
2 : 00 to 3 : 30	Spec. Rooms (2 : 00–2 : 30 Spec. Rooms (2 : 30–3 : 00) Spec. Rooms (3 : 00–3 : 30)	Home Rooms

Typical daily programs of pupils in the third and sixth grades of a platoon school compared with those of pupils of the same grades in non-platoon schools appear below :

TABLE II

A Class — Third Grade

PLATOON		NON-PLATOON	
		A.M.	
	Home Room	8 : 45– 8 : 55	Opening Exercises
8 : 30– 9 : 00	Reading	8 : 55– 9 : 15	Arithmetic
9 : 00– 9 : 30	Arithmetic	9 : 15– 9 : 35	Arithmetic (Study)
9 : 30– 9 : 50	Penmanship	9 : 35– 9 : 45	Geography
9 : 50–10 : 00	Recess	9 : 45–10 : 00	Recess
	Special Rooms	10 : 00–10 : 30	Reading
10 : 00–10 : 30	Library	10 : 30–11 : 00	Drawing
10 : 30–11 : 00	Auditorium	11 : 00–11 : 15	Health Education
11 : 00–11 : 30	Play	11 : 15–11 : 30	Spelling
	Dismissal	11 : 30	Dismissal
		P.M.	
12 : 30– 1 : 00	Reading	1 : 00– 1 : 20	Music
1 : 00– 1 : 20	Spelling	1 : 20– 1 : 45	Language
1 : 20– 1 : 30	Arithmetic	1 : 45– 2 : 00	Penmanship
1 : 30– 1 : 50	Reading	2 : 00– 2 : 15	Recess
1 : 50– 2 : 00	Recess	2 : 15– 2 : 30	Geography
	Special Rooms	2 : 30– 2 : 45	Health Education
2 : 00– 2 : 30	Literature	2 : 45– 3 : 00	Reading
2 : 30– 3 : 00	Gymnasium	3 : 00– 3 : 15	Silent Reading
3 : 00– 3 : 30	Science	3 : 15	Dismissal

B Class — Sixth Grade

A.M.

PLATOON		NON-PLATOON	
	Home Room		
8 : 30– 9 : 00	Arithmetic	8 : 45– 8 : 50	Opening Exercises
9 : 00– 9 : 30	Penmanship and English	8 : 50– 9 : 20	Drawing
9 : 30– 9 : 50	Spelling	9 : 20– 9 : 45	Spelling
9 : 50–10 : 00	Recess	9 : 45–10 : 15	Health Education
	Special Rooms	10 : 15–10 : 30	Recess
10 : 00–10 : 30	Literature	10 : 30–11 : 00	Arithmetic
10 : 30–11 : 00	Science	11 : 00–11 : 30	Geography (Study)
11 : 00–11 : 30	Gymnasium	11 : 30–11 : 45	Penmanship
	Dismissal	11 : 45	Dismissal

P.M.

12 : 30–12 : 50	Study Science	1 : 00– 1 : 10	Courtis Test
12 : 50– 1 : 10	Arithmetic	1 : 10– 1 : 40	Geography
1 : 10– 1 : 50	English Composition and Reading	1 : 40– 2 : 00	Hygiene
1 : 50– 2 : 00	Recess	2 : 00– 2 : 25	English
	Special Rooms	2 : 25– 2 : 30	Recess
2 : 00– 2 : 30	Library	2 : 30– 3 : 00	Arithmetic (Study)
2 : 30– 3 : 00	Auditorium	3 : 00– 3 : 30	Reading
3 : 00– 3 : 30	Music	3 : 30	Dismissal

The Detroit plan of platoon organization is possible only in a building containing regular classrooms, an auditorium, a gymnasium, and indoor or outdoor play space. With these facilities and the adoption of a standard of forty children to a classroom group or section, the capacity of any building organized on the Detroit plan may be determined by multiplying the original number of classrooms by $\frac{4}{3}$; *e.g.*, a building of eighteen classrooms, accommodating eighteen groups or sections (720 children) on the traditional plan, will on the Detroit plan be able to accommodate twenty-four sections ($18 \times \frac{4}{3} = 24$) or 960, making an increase of $33\frac{1}{3}$ per cent. This increase may be illustrated by the following diagrams.

In Figure 1, which represents a school organized on the traditional plan, the shaded areas indicate eighteen classrooms. The kindergarten has a capacity of sixty children. In addition this building includes space for manual training, domestic science, domestic art, library,

auditorium, gymnasium, and playcourt. All of these areas furnish extra space which is used at times when pupils leave one or more of the eighteen regular rooms.

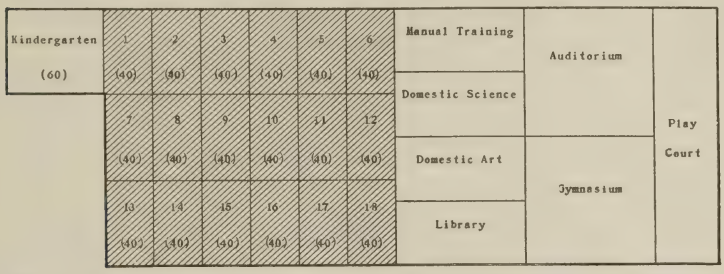

FIG. 1. — A school organized on the non-platoon plan. Capacity, 720 pupils, exclusive of 60 in kindergarten.

In spite of this extensive auxiliary space the actual capacity of the building remains $18 \times 40 = 720 + 60$ (kindergartners).

In Figure 2 the same school is shown organized upon the Detroit platoon plan. By utilizing the auditorium, gymnasium, and playcourt continuously in connection with the eighteen schoolrooms it is possible to organize a twenty-four section platoon school with a capacity of 960 (40×24) + 60 kindergartners. In a twenty-four section school there are twelve home rooms and additional space in the building to house the other twelve sections at the same time. Twelve of the regular schoolrooms, indicated in the shaded area, are used for home rooms. The remaining six may be distributed as follows: two as literature rooms, two as science rooms, one devoted to art, and one to music. The original shaded area will therefore house eighteen of the twenty-four sections. The remaining six sections must be provided for at all times by the

other shaded area, which includes the auditorium, gymnasium, and playcourt. Thus the continuous use of the auditorium-gymnasium-playcourt area increases the capacity of the building $33\frac{1}{3}$ per cent from eighteen to twenty-four sections, or from 720 pupils to 960. While the auditorium and play spaces each have a normal capacity of eighty pupils, it is possible to vary this number. In actual practice the number of pupils

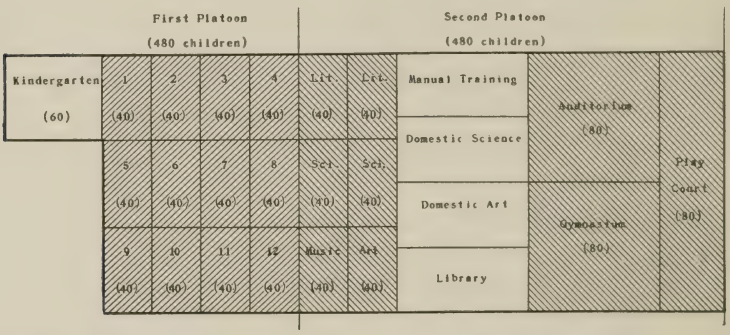

FIG. 2. — The same school as in Figure 1, organized upon Detroit platoon plan. Capacity, 960 pupils, exclusive of 60 in kindergarten.

who occupy the auditorium and play space each period is determined in part by the number who at the same time are using the manual training, domestic science, and domestic art rooms, and the library. Time which is spent in any one of these rooms is normally deducted from play time or auditorium time and hence diminishes the number of pupils occupying these units.

If, in introducing the platoon organization, regular classrooms are used for auditoriums or gymnasiums, the number of such rooms must be deducted from the total number of rooms originally in the building before the formula can be applied.

Types of platoon schools. After six years of experience with the Detroit platoon schools, five different types [1] of organization have been developed. The following tables show the enrollment, required space, and required number of teachers in each type.

TABLE III — SPACE REQUIRED FOR VARIOUS TYPES OF PLATOON SCHOOLS

TYPES	EN-ROLL-MENT	HOME ROOMS	LIT.	SCI.	MUSIC	ART	TOTAL NO. CLASS ROOMS	AUD.	GYM.	PLAY-COURT	LIB.	MAN. ARTS
12 sec.	480	6	1	1	.5	.5	9	1	1	1		
16 sec.	640	8	1	1	1	1	12	1	1	1		
18 sec.	720	9	1.5	1.5	1	1	14	1	1	1		
20 sec.	800	10	1.5	1.5	1	1	15	1	1	1	1	2
24 sec.	960	12	2	2	1	1	18	1	1	1	1	2

TABLE IV — NUMBER OF TEACHERS REQUIRED FOR VARIOUS TYPES OF PLATOON SCHOOLS

TYPES	HOME ROOM	HOME ROOM RE-LIEF	AUD.	GYM.	LIT.	SCI.	MUS.	ART.	LIB.	MAN. ARTS	TOTAL NO. OF TEACH-ERS
12 sec.	6	1	1	2	1	1	.5	.5			13
16 sec.	8	1	2	2	1.5	1.5	1	1			18
18 sec.	9	1	2	2	2	2	1	1		.8	20.8
20 sec.	10	2	2	2	2	2	1	1	1	1.2	24.2
24 sec.	12	2	2	3	2.5	2.5	1	1	1	2	29

The twenty-four section type has been selected as the standard because it best utilizes space and teacher service, and twenty-three of the fifty-four schools now in operation are of this size. New buildings are so planned that they can be erected in units adapted to the twelve and twenty-four section types. The largest buildings, such as the Duffield (Figure 53, page 143) have facilities for two twenty-four section schools. If the size of a building and the enrollment make

[1] Programs of each type may be found in the Appendix, page 233.

necessary a number of sections larger than thirty-six and less than forty-eight, it is desirable to organize a twenty-four section school, and either a twelve or sixteen section school in the same building.

Program making. No platoon school can be successfully organized and administered unless it has back of it a carefully planned, well-balanced program. The program is the most important factor of the organization, determining to a large extent the utilization of the school plant, the best distribution of subject matter according to grade allotment, and the most effective use of teachers' time.

In making a program, the following are essential considerations:

(1) Space in building.

(2) Enrollment by grades.

(3) Time allotment or period distribution.

(4) Planning of classes with desired sequence of pupil's work and equalization of teacher's time.

Space. If a building is being considered for a platoon organization, every detail of space must first be checked. Rooms to be used for auditorium, gymnasium and play must be selected and all available rooms of classroom size included; *e.g.*, a building of eighteen classrooms with auditorium, gymnasium, manual arts, and library space will become a twenty-four section school with classrooms divided (see Table III) into twelve home rooms, two literature rooms, two science rooms, one music room, and one art room. This is the minimum space required for this type of organization. Details of space requirements for other types of platoon organizations will be found in Table III.

Enrollment. After the space has been analyzed, the building capacity is determined by multiplying the number of classrooms by $\frac{4}{3}$; *e.g.*, eighteen classrooms would accommodate twenty-four groups or class sections or, on the basis of forty in a section, 960 pupils. In the same manner, the number of sections of any size of building may be determined, thus forming the basis for the type of program to be made.

Time allotment. In making the program of special activities, a standard time allotment by subject and grade must be followed.

TABLE V — WEEKLY TIME ALLOTMENT

	I	II	III	IV	V	VI	VII	VIII
HEALTH								
Gymnasium	150	150	150	150	150	150	150	150
Play	150	150	120	60	60	60	0	0
Recess	100	100	100	100	100	100	100	100
TOTAL	400	400	370	310	310	310	250	250
LANGUAGES								
Reading and Phonics	725	625	400	250	150	150	100	100
Lit., Comp., Grammar	150	150	150	150	250	250	300	300
Spelling	75	75	100	100	100	100	100	100
Penmanship	0	0	100	100	100	100	100	100
Library	30	30	60	60	60	60	60	60
TOTAL	980	880	810	660	660	660	660	660
SOCIAL SCIENCE								
Auditorium	150	150	150	150	120	120	90	90
History	0	0	0	0	0	0	250	250
Nature and Geog.	150	150	150	250	250	250	0	0
TOTAL	300	300	300	400	370	370	340	340
EXACT SCIENCE								
Mathematics	0	100	200	250	250	250	250	250
TOTAL	0	100	200	250	250	250	250	250
VOCATIONAL								
Manual Training	0	0	0	60	90	90	180	180
Domestic Science	0	0	0	0	0	0	0	0
Mechanical Drawing	0	0	0	0	0	0	0	0
TOTAL	0	0	0	60	90	90	180	180
FINE ARTS								
Music	60	60	60	60	60	60	60	60
Drawing	60	60	60	60	60	60	60	60
TOTAL	120	120	120	120	120	120	120	120
TOTALS	1800	1800	1800	1800	1800	1800	1800	1800

TABLE VI — Time Allotment for Home Room and Special Room Activities

TIME ALLOTMENT FOR HOME ROOM

	B1	A1	B2	A2	B3	A3	B4	A4	B5	A5	B6	A6	B7	A7	B8	A8
Reading and Phonics	800	725	625	625	400	400	250	250	150	150	150	150	100	100	100	100
English	0	0	0	0	0	0	0	0	100	100	100	100	150	150	150	150
Spelling	0	75	75	75	100	100	100	100	100	100	100	100	100	100	100	100
Arithmetic	0	0	100	100	200	200	250	250	250	250	250	250	250	250	250	250
Science	0	0	0	0	0	0	100	100	100	100	100	100	100	100	100	100
Penmanship	0	0	0	0	100	100	100	100	100	100	100	100	100	100	100	100
Recess	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
TOTALS	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900

TIME ALLOTMENT FOR SPECIAL ACTIVITIES

Auditorium	150	150	150	150	150	150	150	150	120	120	120	120	90	90	90	90
Gymnasium	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
English	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Science	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
Art	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Music	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Manual Arts	0	0	0	0	0	0	60	60	90	90	90	90	180	180	180	180
Library	30	30	30	30	60	60	60	60	60	60	60	60	60	60	60	60
Play	150	150	150	150	120	120	60	60	60	60	60	60	0	0	0	0
TOTALS	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900

There are six half-hour periods of special activities a day for each group, or thirty periods a week (6×5), and these periods must be definitely accounted for in the program, according to the number of periods in each subject for each grade. For example, a child in the third grade in a platoon school has daily instruction (five periods a week) in the gymnasium, the auditorium, the literature room, and the science room; instruction two periods a week in the art room, the music room, and the library; and four periods a week for play. This makes a total of thirty periods, which, in a correctly made program, will always check with the third-grade designated period allotment for each subject.

The distribution of the thirty half-hour periods of the week for all grades in all special activities will be found in the following table:

TABLE VII — Period Distribution of Special Activities

	1B	1A	2B	2A	3B	3A	4B	4A	5B	5A	6B	6A	7B	7A	8B	8A
Auditorium	5	5	5	5	5	5	5	5	4	4	4	4	3	3	3	3
Gymnasium	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Play . .	5	5	5	5	4	4	2	2	2	2	2	2				
Literature .	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Science. .	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Music . .	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Applied Art	2	2	2	2	2	2	4	4	2	2	2	2	2	2	2	2
Library .	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
Manual Arts									3	3	3	3	6	6	6	6
TOTAL .	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

Planning classes. In the actual making of the program care must be exercised not only in following the correct time allotment, but also in scheduling classes so that subjects will occur in the desired sequence. Classes must also be planned so as to equalize all teachers' time, giving to each a five-hour teaching day and two half-hour rest periods.

In scheduling classes, effort must be made to have all primary classes assigned to the nature room for science, and all middle and upper-grade classes to science rooms equipped for geography and history.

All manual arts classes must be scheduled in three consecutive half-hour periods, and all art classes above the third grade in two consecutive periods.

It is not desirable to assign play and gymnasium activities in the same session or two periods of any activity for the same day.

In doubling groups in the auditorium, gymnasium, and playcourt, care must be exercised to combine groups of about the same grade so that subject matter may be easily adapted. In a twenty-four section school, because of the twelve half-hour periods a day, double groups may be put in the above departments every period, while in the other smaller types single groups will necessarily be found at times in these departments.

Teachers' work should be assigned on the basis of subject and grade, so that too great a variety of subjects and grade range of pupils may be avoided. A twenty-four section school on the Detroit plan works out as the best type for division of teachers' work. In smaller types, where the number of pupils enrolled is less, it is often necessary for the work of teachers to overlap as far as subjects are concerned. However, by careful assignment programs in any type of platoon school, the work of teachers may be equalized. It is through this equalization that the schedule showing the number of teachers required for each type of school has been determined. (See page 55.)

Administrative details. Administrative details may be classified under the following captions:

(1) Care of books and supplies
(2) Care of wraps
(3) Arrangement of recess periods
(4) Relief teachers
(5) Records of attendance
(6) Seating of special rooms

Care of books and supplies. Convenient disposition of supplies and textbooks, which might appear to be a complicated problem, has been provided for without great difficulty in each platoon school.

If free textbooks are used, the organization permits of considerable economy in the use of books. In home rooms, two groups of pupils use one set of books. Paper is distributed by the teacher when needed. A few extra copies of basal texts are supplied to each home room for the use of pupils who may care to take them home. The books which are used in common by

two pupils may be kept in the desk. It is desirable for each pupil to have a small bag or box in which he may store his individual property such as pencils, pens, erasers, etc. Both bags may remain together in one desk, or one set may be placed in one of the supply cabinets in the room, while the other set is being used. The dual use of one home room desk by two pupils need cause no confusion or friction if the plan of administration is carefully thought out in advance.

In each of the special rooms — the art room, the music room, the literature room, and the science room — all books, apparatus, and specific materials pertaining to each of the special subjects are kept. This permits economy in the use of supplemental readers, music readers, art books, geographies, and histories. It is not the intention to reduce the amount of money spent for books, but to direct the expenditure in such a way that each special room may have a more ample supply of supplementary and reference books for the pupils who work in the room.

Care of wraps. In introducing the platoon organization into a building not erected especially for this type of school, the care of wraps becomes a problem to be solved in the light of local conditions in each building. Because wraps must be easily available for outdoor play without interrupting classroom work, space for wraps should be provided outside of schoolrooms. In new buildings planned for the platoon organization the best and probably the cheapest arrangement is the location of steel lockers in corridors. This utilizes space which is of little value and locates the lockers in a place easily accessible.

New buildings and many of the remodeled buildings in Detroit are now provided with hall lockers (15 × 15 × 60 inches) with two compartments for wraps and two shelves in each locker. Two pupils use one locker of this type. In old buildings, classrooms which have adjoining cloakrooms with doors leading into a corridor are also convenient for the platoon organization, as pupils have access to wraps without interrupting class work.

Arrangement of recess periods. The regular play periods and health education periods in the platoon school take the place of the usual recess in the non-platoon school. The platoon school schedule provides, however, for a short basement recess both morning and afternoon. The administration of recesses depends upon the toilet facilities of the buildings.

The short recess period which is solely for the purpose of giving pupils access to toilet facilities is gradually being replaced by the individual recess. In a school directed by a capable administrative head there appears to be no reason why individual pupils may not be allowed to leave the room at such times as they may elect. This saves the time ordinarily allotted for a general basement recess.

Relief teachers. In assignment of teachers' work great care has been taken to avoid overburdening teachers. No teacher is expected to teach over five hours a day and each teacher is entitled to two half-hour rest periods daily. To provide for this, relief teachers are employed who have no regular rooms but who go from room to room relieving other teachers. All relief teachers teach ten thirty-minute periods a day.

The assistant principal, who in traditional schools has charge of the highest room in the building, in the larger platoon schools has been made either entirely or partly a "free first assistant." The time during which the first assistant is free from teaching is devoted to administrative or supervisory work in the building.

In the Detroit plan the following schedule for distribution of first assistants' time is in use:

TABLE VIII — DISTRIBUTION OF TIME OF FIRST ASSISTANTS

SIZE OF SCHOOL	INSTRUCTION	ADMINISTRATION AND SUPERVISION
12 section	100%	0
16 section	100%	0
18 section	100%	0
20 section	50%	50%
24 section	33⅓%	66⅔%

In schools larger than twenty-four sections, the time of the assistant is given over entirely to assisting the principal in administration and supervision.

In the Detroit plan, home room teachers from Grades 3 to 8 are relieved by penmanship relief teachers, who have the responsibility for the work in writing in the home rooms.

Records of attendance. Each home room teacher is responsible for the attendance records of her two sections of pupils. Special teachers coöperate to the extent of assisting in the taking and recording of attendance and tardiness. They also assist the home room teachers in giving tests and in making the regular routine reports. Each section has a class captain who carries an attendance record card with him from class to class. This card is checked by each special

teacher to whom the section recites and when the group returns to the home room the card shows the complete record of attendance of the class from the beginning of the session.

Seating of special rooms. Special rooms must be provided for pupils of various sizes from the first grade through the sixth grade or, in some instances, the eighth. This may be done by using two or three sizes of movable seats or tables and chairs of varying sizes. The auditorium is seated with two sizes of opera chairs, for the accommodation of younger and older children.

Organization of instruction. In the several departments of a platoon school the activities may be classified under the following captions:

(1) Fundamentals
(2) Leisure time
(3) Health
(4) Social-Civic
(5) Social-Science
(6) Vocational

Fundamentals. The home room is the regular school home of the pupil. The home room teacher not only has the pupil under her control three hours of the day and exerts the same type of influence over him that the teacher has always exerted in the non-platoon school, but she also coöperates with the other teachers in planning his work, keeps in touch with his progress and conduct, and communicates with his parents in all matters in which the coöperation of the home and school is necessary. During at least two and one half hours of the day the pupil comes under her direct personal instruction.

FIG. 3. — A first-grade home room with tables and chairs.

The home room teacher under this organization may become a specialist in the formal subjects. In the platoon schools the home room must care for the instruction in arithmetic, spelling, reading, and part of the work in English. The home room teachers teach five clock hours a day and have two thirty-minute rest periods. The work in penmanship is done by the home room relief teacher. The distribution of time for home room subjects is based upon the home room time allotment. (See page 58.)

The home room organization, with the concentration of most of the instruction in the fundamentals in the hands of one teacher, is an important factor in the Detroit plan. It avoids the dangers that may arise from complete departmentalization in all subjects, and, at the same time, provides a type of organization which prepares a pupil to make the transition readily from the elementary school to the completely departmentalized intermediate and high schools.

Whether justly or not the public still rates instruction in the so-called "fundamental subjects" as of first importance. The traditional school has always emphasized this phase of school work.

In the platoon school the major part of the instruction in fundamentals is done in the home room, by one teacher, and under conditions more favorable than those prevailing in the non-platoon schools. The new school does not neglect the three R's either in the matter of emphasis, or in the amount of time devoted to them.

Leisure time. — (*a*) *Music room.* This room is reserved for regular instruction in music. Its seats ac-

FIG. 4. — A home room with fixed seats.

commodate pupils of all grades and generally speaking every pupil has two thirty-minute periods a week in this room. The teacher gives instruction ten thirty-minute periods a day and has two rest periods.

There is very close coöperation between the work of the music department and that of the auditorium. The technical music and preliminary chorus work are done in the music room and brought to the auditorium for further interpretation and polish. The dramatic work of the literature room and auditorium and the chorus work of the music room are used as the foundations of operettas, cantatas, and pageants. These productions aid in developing the dramatic and musical possibilities of the children and help to promote a good school spirit. In a number of schools the music teacher trains and directs an elementary school band or orchestra.

The purpose behind the instruction in music may be clearly expressed in the following quotation : [1]

> For music, the new method means renewed life and spirit. It means teaching children instead of teaching music. It means capitalizing the natural joyous emotionalism of childhood and turning it into organized, beneficial, and artistic channels of expression. It means increased opportunities to make daily lessons the series of happy, friendly, social occasions which the best teachers of music have always made them even in the face of unfavorable conditions. More specifically, the successful modern teacher will study the children in her classes to determine each day their dominant emotional state. She will consult their tastes and inclinations and aid them in selecting those songs and exercises which contribute most to their needs. The first, last, and most evident characteristic of the music lesson will be the making of music. In other words the teacher's chief concern will be to make music function in the lives of the children, knowing full well that imperfection in

[1] Introduction to *Detroit Course of Study in Music.*

FIG. 5. — A music room.

FIG. 6. — An art room.

functioning and achievement will create a demand on the part of the children for drill in those elements which contribute most to greater skill. Under such conditions it is easy to get children to adopt ever higher and higher standards and to form wider and more worthy purposes. It is natural also, for those who themselves love and use music, daily to give attention to and appreciate more truly, the musical activities of others.

(*b*) *Art room.* This room is for special training in applied art. The teacher is an art specialist, who teaches ten half-hour periods a day with two half-hour periods for rest. Besides developing art appreciation, the art room affords training in the selection of material related to various life situations, such as home planning, garden designing, making of clothing, and the like. In the art room also are developed types of work closely correlated with the activities of other departments of the school.

(*c*) *Literature room.* This is a room provided for the purpose of emphasizing the appreciation side of literature. The teacher is selected with reference to her own literary appreciation and her ability to interpret child literature and arouse enthusiasm for it. The telling and retelling of stories, the reading and reciting of poetry, and the informal dramatization of stories are the prominent features of literature room work. The literary material considered in this room may form the basis for dramatic work in the auditorium and at times the preliminary preparation for the more formal dramatic work may be done in the literature room. The teacher of this room coöperates closely with the auditorium teachers.

The literature room, which exists primarily to develop literary appreciation, also shares with the home

FIG. 7. — An art room.

FIG. 8. — A literature room.

room the responsibility for the more formal aspects of English instruction. The distribution of the work between the two rooms is indicated below:

TABLE IX — Distribution of Time — Literature Rooms and Home Rooms

LITERATURE ROOMS	
Grades 1–8 — Appreciation and Composition	
Composition (oral and written)	60 minutes per week
Appreciation (stories and poems)	90 minutes per week
HOME ROOMS	
Grades 5–6 — Composition and Language Habits	
Composition (oral and written)	40 minutes per week
Language Habits	60 minutes per week
Grades 7–8 — Composition and Technical Work	
Composition (oral and written)	60 minutes per week
Technical Work	90 minutes per week

Health. — (*a*) *Gymnasium.* A platoon school is regularly provided with a gymnasium sufficiently large to house eighty pupils, and if possible with additional indoor play space to be used in inclement weather. Each school has a corps of two or more health teachers who direct the activities in the gymnasium and on the playground. One of these teachers is a director, who has charge of the department and receives additional compensation.

In the gymnasium all the best recognized types of elementary school health work are carried on. With the smaller children dramatic games and marching play an important part. The older pupils have formal exercises, games, folk dances, and drills. Basketball is a popular indoor game and soccer is very popular for outside work. All the older children participate in individual "stunts."

(*b*) *Play.* In addition to the regular half-hour daily period for health work, an outdoor play period is scheduled.

FIG. 9. — A gymnasium.

FIG. 10. — A gymnasium.

Provision for an outdoor play period presupposes a place to play. As the playground is used almost constantly, it is desirable that every platoon building be provided with play space sufficiently large to permit every child to have at least one period daily for some kind of health exercise. In the new buildings this has been arranged for by building covered outdoor playcourts or indoor playcourts in addition to the gymnasiums.

The health education department coöperates closely with the auditorium. Drills, dances, and stunts from the gymnasium are frequently reproduced in the auditorium. Dances and drills which form a part of operettas and plays are developed in the gymnasium. The health teachers also make practical application of the socialized hygiene taught in the auditorium.

The function of health education in relation to the great social objectives may be shown as in Figure 12 and in the following outline:

TABLE X — Aims and Problems of Health Instruction [1]

1. The aim is to give the child increased *physical ability*, to insure *normal growth*, to *decrease* illness, to *avoid accidents*, to *overcome defects*, and to make possible an abundance of energy and vitality.

2. The major problems about which this health program will be developed are:

(1) Normal growth	(4) Safety
(2) Decreased illness	(5) Physical performance
(3) Physical defects	(6) Increased energy and vitality

3. In general each of the above major problems will be developed from the standpoint of the following contributing factors:

(1) Food	(4) Exercise	(7) Posture
(2) Rest	(5) Clothing	(8) Leisure time
(3) Air	(6) Cleanliness	(9) Qualities of mind

4. The general method of teaching each of the six major problems should be as follows:
Observe physical likeness and differences and relate them to (1) normal growth; (2) decreased illness; (3) physical defects; (4) safety education; (5) physical performance; (6) increased energy and vitality.
Relate the factors contributing to health (food, rest, air, etc.) to each of the major problems.

[1] *Course of Study in Health Instruction*, Detroit Public Schools.

FIG. 11. — A playground with group games in progress.

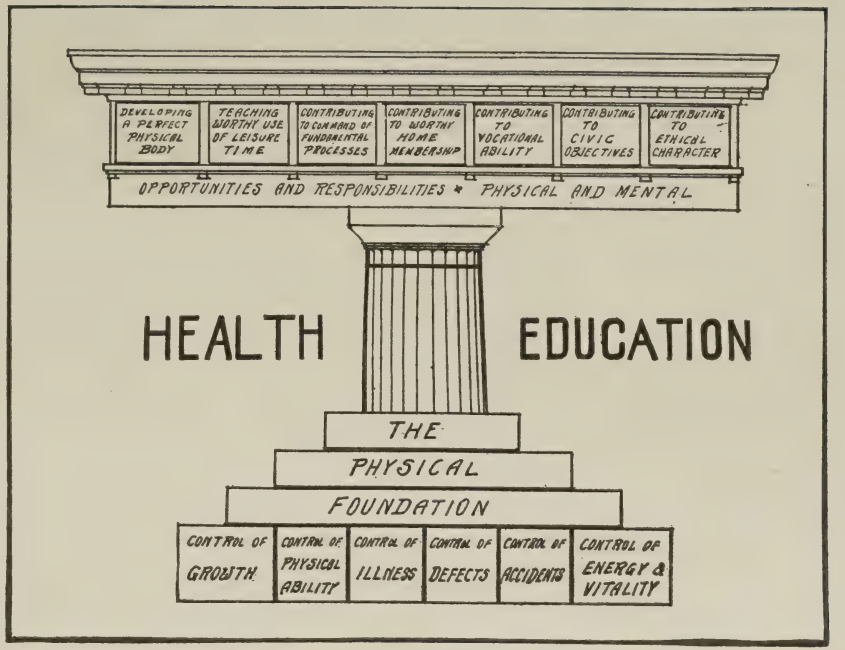

FIG. 12. — Aims of health education.

Social-Civic. — (*a*) *The auditorium.* The auditorium of the platoon school adds to the elementary school an entirely new and important socializing unit which the non-platoon school did not have. The possibilities of this unit are almost unlimited. When its possibilities are finally worked out and realized it will probably be found to be one of the most effective educational forces in the entire organization.

The auditorium does not have the atmosphere or the paraphernalia of the schoolroom. It has rather the general spirit of freedom from restraint found in an ordinary public assembly. Here pupils meet in larger groups of their fellows and participate in those activities which make them conscious of their social relationships and teach them how to act and react among their companions.

As at present organized, an auditorium provides for each group of eighty pupils a thirty-minute period during the day. It is in constant charge of two teachers who are selected because of their special fitness. The two teachers share the work. Generally speaking one teacher is a primary grade specialist and the other is a grammar grade expert. These teachers coöperate with the teachers of other departments in planning auditorium activities. Each auditorium teacher is paid a salary in excess of the regular elementary school salary.

As an integral part of the elementary school the auditorium has two distinct functions:

(1) As a socializing unit.

(2) As an integrating and correlating unit.

The auditorium as (1) a socializing unit seeks to bring to bear upon the children all of those influences which

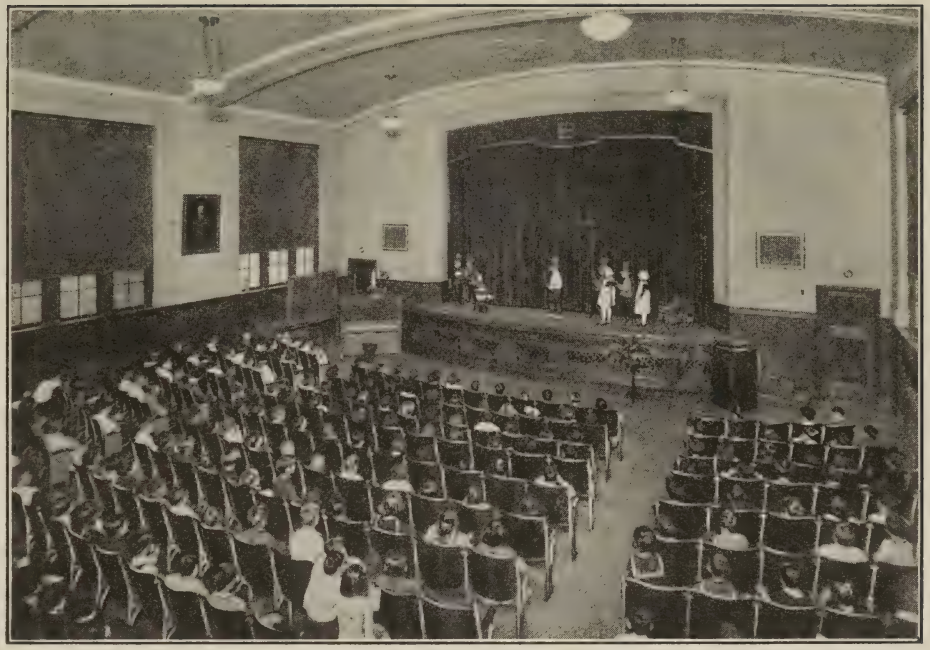

FIG. 13. — A large group in an auditorium.

will help them to realize the great social aims. All auditorium activities have behind them the social motive. Thus, in this unit of the school, teachers consciously and definitely attempt to train children for social life and for citizenship. The development of auditorium possibilities is still in an experimental stage, but enough has been done to convince the most skeptical that this is an educational factor which is destined to be recognized in the future not only in elementary education but in intermediate and secondary schools as well.

The various types of auditorium activities which so far have been developed and the social aims which they are intended to realize may be stated as follows:

(1) Health:
  Personal hygiene.
  Civic hygiene.
(2) Civic Ideals:
  Rights and duties of citizens.
  Loyalty to city, state, and nation.
  Interest in the welfare of the community.
  Knowledge of social agencies and institutions.
(3) Worthy Use of Leisure Time:
  Recreation of mind, body, and spirit.
    Music — Vocal, instrumental, piano, phonograph, school orchestra, chorus, cantata, community singing, patriotic songs.
    Literature — Story telling, reading, biography, recitation, debate, parliamentary procedure.
    Drama — Dramatizations, based on literature, history, and geography, and combined with music. Pageants.
    Picture projection — Stereopticon and moving pictures related to science, art, geography, travel, history, and literature.
    Avocational interests — Making and exhibiting collections or products of the avocational activities of children.
(4) Ethical Ideals:
  Use of activities included under (3).

(5) Vocational Guidance (schools having seventh and eighth grades):
Turning pupil's attention to vocations of community.
Arousing him to test out and determine his own interests, capacities, and aptitudes in vocational lines.
Reports in writing on various community activities.
Coöperation with the Manual Training, Domestic Science, and Domestic Art Departments.
(6) Worthy Home Membership:
Discussion of relationship of pupil to home and members of family.
His responsibilities and duties.
Use of stories and poems to idealize and interpret home relationships.
(7) Miscellaneous Activities:
Public assemblies — Invited speakers.
Various types of civic or welfare campaigns.
Thrift.
Safe living.
Clean-up day.
Swat the fly.
Open days.
Festival days.

Auditoriums are equipped with moving-picture booths and apparatus for the projection of slides and moving pictures. The Board of Education of Detroit has a collection of 8,000 educational slides that are available at all times so that some stereopticon work may be done daily. At regular intervals the entire time of the auditorium is given over to moving pictures. Advance notices of the films to be shown are sent to schools, and films adapted to both primary and grammar grades are selected.

Auditoriums are supplied with phonographs and a library of records is owned by the Board of Education. Pupils constantly hear good vocal and instrumental

music and musical instruction is frequently given for the specific purpose of developing musical appreciation.

In the non-platoon school organization general welfare campaigns (Community Fund, Thrift Week, Clean-up Week, etc.) break in upon the day's work and greatly diminish the effectiveness of the teachers' efforts. In the platoon school, the auditorium, organized as it is for social and civic service, can take over all such enterprises and the children can be reached during the auditorium period so that the regular work of the school does not suffer in any respect.

In a like manner the auditorium can take over the celebration of national holidays, fête days, and birthdays of famous people, thus relieving the regular room of this responsibility.

Teachers who have had experience in the platoon school appreciate very keenly the service which the auditorium renders in relieving the regular room teacher from participation in the many activities which in themselves are socially worthwhile, but which greatly interfere with the pupil's progress in the three R's. The auditorium finds in these activities only another opportunity to help the pupils to become socially efficient and to realize their responsibilities to the community.

The auditorium may be (2) an integrating and correlating unit. It is frequently advanced against departmentalization and specialization in elementary schools that such organization tends toward disintegration, that the specialist feels a responsibility only for his own work, and that as a result the combined efforts of the special or departmental teachers to educate the

child lack unity of purpose. It is urged that, in a departmentalized school, instead of having a series of experiences which are related and which have a common end, what the pupil really has is a series of unrelated experiences in which he realizes no common purpose. The result is disintegration.

That this argument may have a certain validity is not denied. It is possibly true that in many cases in

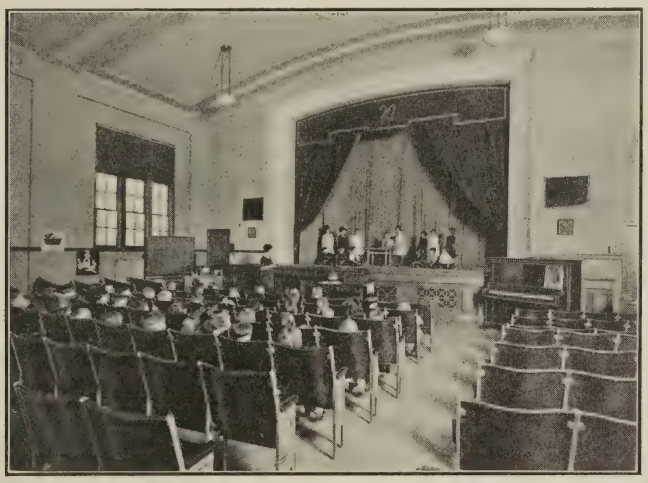

FIG. 14. — A group in an auditorium.

which one teacher teaches all of the subjects to each pupil in her room there may be closer integration. It is also true, however, that in a non-platoon school where this takes place there is practically no integration of the work of the several rooms in the building. Each teacher is to a large degree an isolated unit. Frequently she does not know the work of the grades which precede or follow, so that we can say that the pupil's

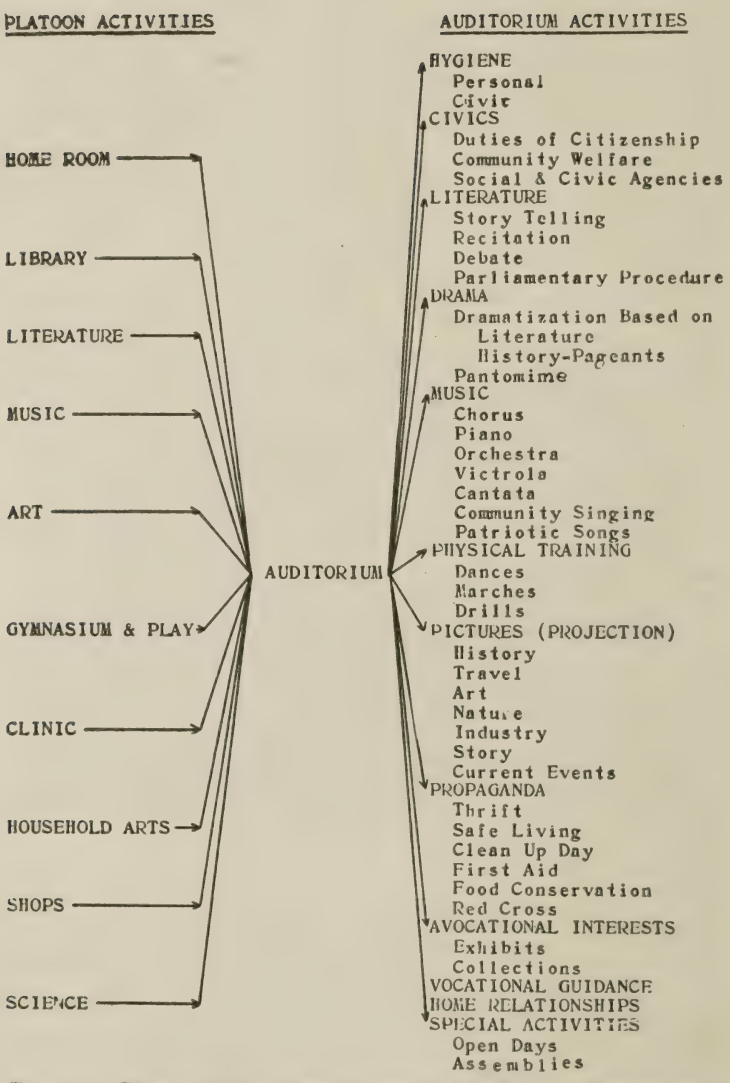

FIG. 15.—The auditorium as an integrating and correlating center.

school experience as a whole is a series of disintegrated and unrelated experiences.

In the platoon school, departmentalization in special subjects exists in all grades. It is conceded that the work might become unrelated and disintegrated. It is not admitted that it necessarily must be so. On the contrary the platoon organization not only has possibilities for integration which make possible unified, purposeful educational effort all through the school, but it has possibilities for integrating the work of successive years so that the ultimate product of education in the grades may be a socialized American citizen.

The platoon school has in the auditorium that which the traditional school does not have, an integrating, correlating force. If the aim of education is social and the distinct purpose of the auditorium is the socialization of the pupil, why is it not reasonable to assume that the auditorium should be the point at which the activities of the whole school may focus? It is highly desirable that the experiences which the pupil has in the home room, the gymnasium, the playground, the music room, the literature room, or the studio shall be revived again in the auditorium, where they may be reinterpreted for him in terms of their social values. While it is not possible that all the teaching in the home rooms and special rooms can be thus integrated, it is possible, through the coöperative efforts of all the teachers in the building, to focus the attention and interest of all the pupils on the auditorium activities, to make the pupils conscious of the fact that their experiences in all parts of the school function in various ways in the auditorium. They easily come to realize

FIG. 16. — A nature study room.

the relationship between the physical exercises of the gymnasium and the health talks of the auditorium; between the geography lessons of the home or science room and the stereopticon pictures and moving pictures in the auditorium; and between the story-telling in the literature room, the music in the music room, and the Mother Goose operetta in the auditorium.

In the platoon school, when fully developed and interpreted, the large social motives will be the impelling force, and the auditorium, which is the dominating socializing factor in the school, will become more and more prominent as the agency which will integrate and unify all the child's experiences and interpret them to him in such a way that they will function socially when he goes out into life.

Social-Science. The science rooms are organized specifically for nature study and geography in the first six grades and for history and civics in schools having the seventh and eighth grades.

It is believed that the platoon school offers a satisfactory solution of the problem of teaching nature in the elementary schools. It seems indispensable that a child should secure such instruction as will bring to his notice and help him interpret the ordinary phenomena to be found in his immediate natural environment, but nature teaching in the hands of the regular elementary teacher has rarely proved successful. The establishment of a science room makes it possible to place in charge of this work a teacher who is a student and lover of nature and who has the insight and enthusiasm successfully to conduct this work with young children. The new buildings include two science rooms with

FIG. 17. — A domestic arts room.

herbarium and aquarium and such other appurtenances as make the teaching of nature and geography effective.

The point of view in nature study may be discovered from the following statement [1] of aims:

1. To present material which will awaken the children's interest and stimulate them to some form of investigational or observational activity.
2. To assist them to plan such activities, and to carry them through to successful completion under their own direction.
3. To bring to them progressively, newer and wider interpretations of the results of such experiences.

The test of success in nature study teaching is not knowledge but interest and curiosity. If, as an outcome of the nature study work, children become actively and permanently interested in nature so that they, of themselves and out of school hours, exhibit an inquiring mind and find pleasure and joy in the natural phenomena which hedge us about on every side, the purpose of this special type of work will have been achieved.

Vocational activities. Classes in manual work and sewing are provided for pupils in Grades IV–V, and manual work in wood and instruction in cooking for those in Grade VI. Manual training rooms and cooking rooms each accommodate about twenty pupils at one time and in the general scheme of organization these two rooms count as one special room, twenty boys being cared for in one room and twenty girls in the other. For manual training and sewing in the earlier grades the boys and girls also are segregated in groups

[1] *Course in Nature Study*, Detroit Public Schools.

FIG. 18. — A manual arts room.

FIG. 19. — A domestic science room.

of twenty. Pupils of the fourth grade have sixty minutes a week and pupils of the fifth and sixth grades ninety minutes a week in manual arts and domestic science. In schools having the seventh and eighth grades, pupils have one hundred and eighty minutes a week in these subjects.

The ultimate plan is to house all seventh- and eighth-grade children in large intermediate schools, and then the platoon school will become exclusively a six-grade school. A vocational course for the platoon school is in preparation which will embody a wider range of experiences than the schools now offer in this field.

Auxiliary activities. — *Library.* In the development of schools of the platoon type, it is the purpose to emphasize library instruction as an integral part of the elementary curriculum. In the new buildings and in the remodeled old buildings a room especially built and equipped for library purposes is provided. It is the intention that from the earliest years of the elementary school to the end of the high school, children shall continually be brought into contact with a well-selected library and with library teachers who can direct their library reading, make them familiar with the uses of the library, and arouse in them an enthusiasm for the right kinds of literature.

At the present date (June, 1924), thirty-eight platoon schools have libraries in charge of teacher librarians. These libraries provide accommodations for a group of pupils each hour for directed study, reference work, and reading.

The city time allotment contemplates one thirty-

FIG. 20. — Primary group in library.

FIG. 21. — Eighth-grade group in library.

minute library period a week in Grades I and II, and two thirty-minute periods a week in Grades III–VIII.

Special rooms. As far as possible in each building there is provided some room for the training of children who in some way, physical or mental, depart from normal standards. These quarters house open-window classes, classes for blind, special classes for mentally subnormal children, speech correction classes, and classes for children suffering from cardiac defects.

Lunch room. A desirable feature of a platoon school is a lunch room. In many districts a majority of the pupils live within a reasonable distance from the school and hence can go home for luncheon. The lunch room provides, for a nickel, a plate lunch consisting of a combination of foods approved by the domestic science department. The menu is changed each day and is announced one week in advance. Pupils are urged to bring from home such articles of food as will harmonize with the luncheon menu for each day.

The lunch room is operated under the direction of the domestic science department.

Clinic. A school clinic is maintained in each building by the Board of Health. Suitable quarters are planned in all new buildings with equipment adequate for the use of the physician and nurse. Children are inspected daily, and minor treatments given by those in charge.

Kindergarten. The platoon organization does not affect in any way the established organization of the kindergarten. Pupils in this unit do not form a part of either platoon and consequently have no relation to

FIG. 22. — An open-window room.

FIG. 23. — A lunch room.

the adjustments due to the introduction of this organization. Kindergarten pupils have access to the auditorium and other facilities at the pleasure of the director of the kindergarten and the principal of the school.

FIG. 24. — A clinic.

FIG. 25. — A kindergarten.

CHAPTER III

EVOLUTION OF THE ELEMENTARY SCHOOL BUILDING

I. European School Buildings

School architecture little considered. For many centuries the problem of school architecture, the question of the environment in which instruction should be given, scarcely arose, for teaching was an individual, personal matter, and the time and place were of secondary importance.

The cathedral, monastic, and chantry schools of the middle ages were conducted in close relationship with the other activities of the Church. In the Saxon cathedrals, school was held in the north tower. As a general rule "the monastic school proper was conducted in a corner of the cloister, and there are still traces of the monastic schools at Canterbury and Westminster in the carving in the seats where the boys used to sit."[1]

Early English schoolhouses. When municipally controlled writing and reckoning schools were developed in the latter part of the middle ages they were probably carried on in churches in the beginning, but later were conducted in separate quarters. In England the ancient grammar school consisted ordinarily of a large hall in which pupils of various

[1] Parker, S. C., *History of Modern Elementary Education.*

ages were grouped, and where instruction was given by one master, who was often assisted by pupils or assistant teachers. In later times classrooms were added for occasional use. While public elementary schools in the modern sense did not exist in England until the nineteenth century, the traditional grammar-school type of building with its large hall has influenced school architecture in England even down to the present day. Furthermore, the English idea of giving instruction to mixed groups in a large hall played an important part in American school architecture before the organization of the graded school plan in 1848.

II. Early American Colonial School Buildings

New England schoolhouses. In the early days of the New England colonies, schoolhouses were of logs with a rough puncheon floor, and with seats and desks of rough boards placed around the walls. In the place of glass in the windows greased paper was used.

During the first hundred years of the colonial period, school was frequently held in meeting houses. These buildings were in many respects superior to the log houses of the time and were in some communities utilized for town meetings and for sessions of the courts.

> The meeting house had a single doorway, two windows, and a chimney. The roof was of thatch. Probably the edifice never had a pulpit or pews. Backless benches served for seats, and the change to a school room was very easily made.[1]

Dedham, Massachusetts, was one of the first towns to have a school supported by contributions from the general public. The records of the town describe the

[1] Johnson, Clifton, *Old Time Schools and School Books*, pages 7–8.

building which was erected in 1649. It was "built together with a watch house, the length 18 foote, the wideness, 15 foote; two convenient windows in the lower room and one in the chamber."[1]

The watch house was "a lean-to set at the back of the chimney sixe foote wide."[1] School was taught in

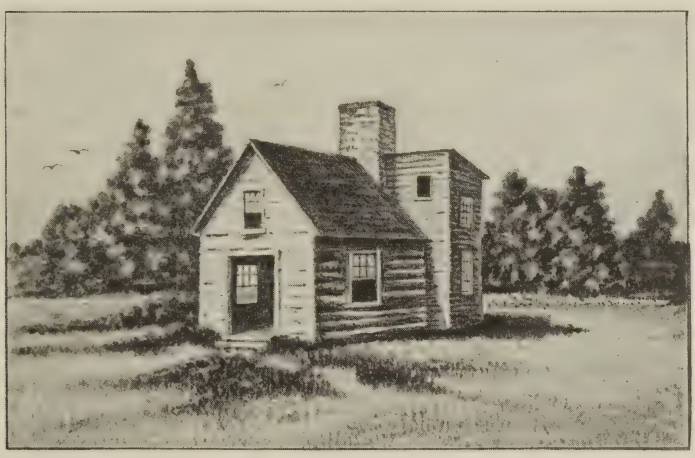

FIG. 26. — Old school in Dedham, Massachusetts.

the main part of the building during the day and at night a sentinel kept his vigils in the lean-to in the rear.

Not all New England schoolhouses of the colonial period were as substantial as the Dedham school, and on one pretense or another many communities failed to provide suitable buildings. The general indifference of the people toward schools is shown by the fact that in many localities classes were held in shops, barns, spare rooms of houses, and uninviting basements.

[1] JOHNSON, CLIFTON, *Old Time Schools and School Books*, pages 7–8.

Schools in the South. Although the provision for school housing in colonial New England was meager and grossly inadequate, it was better than in other localities further south.

Clifton Johnson in *Old Time Schools and School Books*

FIG. 27. — Log schoolhouse of colonial days.

describes a Virginia school of the period before the Revolutionary War[1]:

> The building was of logs. It stood on blocks about two and a half feet from the ground and the space underneath formed a convenient rendezvous for hogs and poultry. The interior was neither ceiled nor plastered. When it stormed, the rain was excluded by going outside and propping a square board against the window opening with a broken rail.

Schools in the middle colonies. Johnson describes the schoolhouses of the middle colonies[1] as follows:

[1] JOHNSON, CLIFTON, *Old Time Schools and School Books.*

The first schoolhouses in the middle colonies were of logs almost exclusively. Such school buildings were common in many sections for at least fifty years after the Revolution, and among the mountains they have lingered in use until quite recently. The earlier ones had rough puncheon floors, if they had any floors at all. Often there was only the bare earth and often it was very dirty. (On occasion the youngsters would purposely stir up this dust in clouds to annoy the teacher and amuse their fellows.) Sticks were inserted between the logs around the sides of the rooms at a convenient height and boards were nailed on them to serve as desks.

Roofs were of bark, and at one end of the building was a chimney of short logs laid up cobhouse fashion and daubed with clay. Many of these schoolhouses, even to the borders of the nineteenth century, had no glass in their windows. The paper that served instead was greased with lard to make it transparent and less easily affected by wet.

III. Schoolhouses of the Period from the Revolutionary War to 1850

Causes for poor school buildings. During the period from the close of the Revolutionary War to 1840 the district school flourished. Shifting responsibility for the maintenance of schools from the town to the small school district was a backward step in education, and has retarded the development of schools, especially in rural districts, down to the present day. In the early post-Revolutionary period, owing to the conditions brought about by the war, the general poverty of the people, and the laxity in governmental control, it was difficult to keep alive any kind of school organization. For this reason, even as late as the middle of the nineteenth century, many districts in the West were without schoolhouses, and classes were held in hired rooms, equipped with desks and benches.

A very vivid picture of conditions relating to school housing up to about 1840 is revealed by the reports of the superintendents of public instruction of the several states which were published by Henry Barnard in 1848. To those who are familiar with the modern school building, especially as it exists in larger communities, the conditions under which our grandfathers attended school are almost unbelievable.

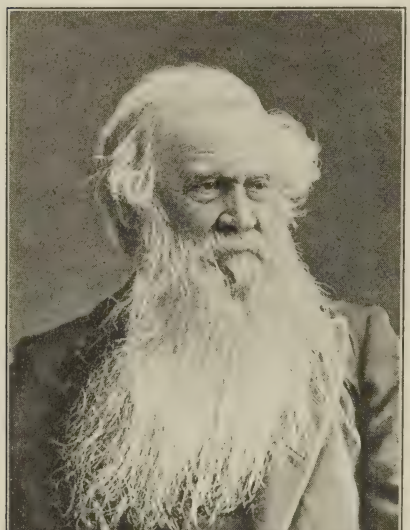

FIG. 28. — Henry Barnard.

Barnard in his noteworthy book on *School Architecture*, published in 1848, referring to school buildings as they then existed, said:

> They are, almost universally, badly located, exposed to the noise, dust, and danger of the highway, unattractive, if not positively repulsive in their external and internal appearance, and built at the least possible expense of material and labor. They are too small. They are badly lighted. They are not properly ventilated. They are imperfectly warmed. They are not furnished with seats and desks, properly made and adjusted to each other, and arranged in such a manner as to promote the comfort and convenience of the scholars. They are deficient in all those in- and out-door arrangements which help to promote habits of order and neatness, and cultivate delicacy of manners and refinement of feeling.

Descriptions. A typical description of district schools in Connecticut in 1848 is given by the Superin-

tendent of Common Schools, Hon. Seth P. Beers, in his *Annual Report* for that year:

How surprising and disgraceful is the fact that a very large proportion of the schoolhouses of our state present vastly fewer attractions, in point of comfortable arrangements and tastefulness, than are seen about our poor houses, our jails, and our penitentiary! . . . The schoolhouses are all located directly on the road or in it . . . with no playground except the highway, which the children, in several districts, have to share in common with geese and swine. . . . Six of nine schoolhouses in this society are wooden ones, and

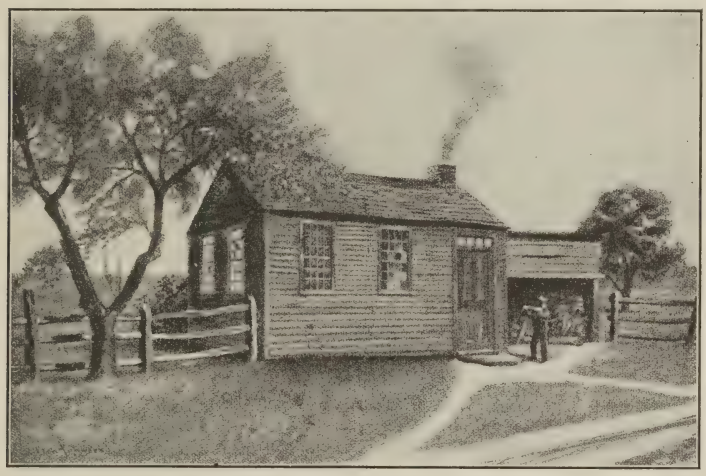

FIG. 29. — Old-time district schoolhouse.

they generally bear a time-honored, weather-beaten aspect. . . . Unpainted and blindless, with clapboards agape to catch the winds of winter, and window panes rattling, or falling from decayed sash, they present a most forlorn and gloomy aspect. . . . The internal condition of these schoolhouses is in perfect keeping with the external. In several of them, the plastering is broken and missing, to say nothing of the dark and dingy color of what remains. The stoves are smoky and the benches and desks are so high as to be better adapted to the children of a race of giants, than to those of the present generation; and these are hacked and gashed by the pupils, as if in retaliation for the torture suffered from them.[1]

[1] JOHNSON, CLIFTON, *Old Time Schools and School Books.*

Horace Mann, in a report made in 1846, said:

In 1837 not one-third part of the public schoolhouses in Massachusetts would have been considered tenantable by any decent family, out of the poor house or in it.

In Michigan in 1847, Hon. Ira Mayhew, Superintendent of Public Instruction, in his report, says:

Exclusive of entry and closets, schoolhouses are not usually larger than twenty by twenty-four feet on the ground and seven feet high. . . . They are usually occupied by at least forty-five

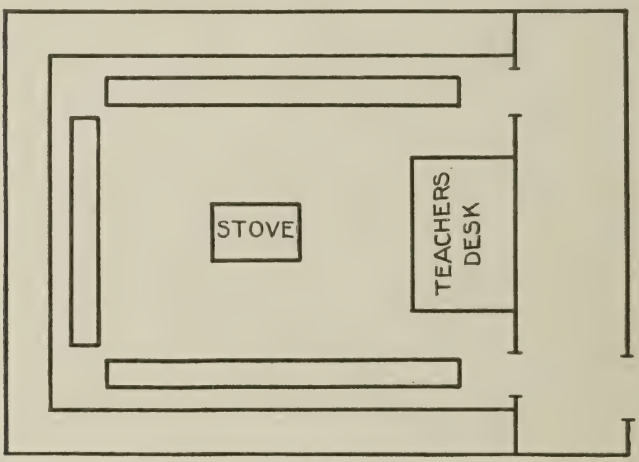

FIG. 30. — Floor plan of an old-time district school.

scholars in the winter season; not infrequently sixty or seventy and occasionally more than a hundred scholars occupy a room of this size. . . . A schoolroom of the preceding dimensions does not contain a sufficient quantity of air to sustain the healthy respiration of even forty-five scholars for three hours, the usual length of each session; and frequently the schoolhouse is imperfectly ventilated between sessions at noon, or indeed for several days in succession. The ordinary facilities for ventilating schoolrooms are opening a door or raising the lower sash of the windows. The prevailing practice with reference to ventilation is opening and closing the door,

FIG. 31. — Interior of an old district school.

as the scholars enter and pass out of the schoolhouse, before school, during the recesses, and at noon.[1]

In the forties, the internal arrangements of the one-room school buildings were much alike everywhere. Along the walls on three sides were sloping shelves for desks. Parallel with these were long benches without backs. Pupils while at work faced the wall or the windows if there were any. In the middle of the room was the stove. Across the front of the building was a narrow hall or entry where pupils kept their wraps. The accommodations in these halls were very inadequate.

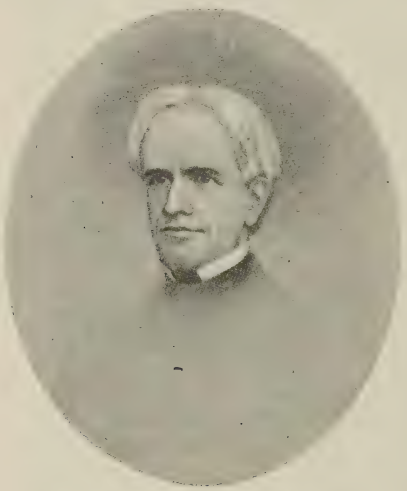

Fig. 32. — Horace Mann.

Suggestions for improvement. The subject of school architecture received little attention in this country before 1838, when Horace Mann submitted a *Report on Schoolhouses* as a part of his *First Annual Report* as Secretary of the Board of Education of Massachusetts. Previous to this date there had been a few articles on school architecture in educational journals, and some addresses on the subject before the American Institute of Instruction. In 1830 this organization offered a prize of twenty dollars for the best *Essay on the Construction*

[1] Johnson, Clifton, *Old Time Schools and School Books.*

of Schoolhouses. The prize was awarded to Dr. William A. Alcott, Hartford, Connecticut, and the *Essay* was published and widely circulated. In 1838 Henry Barnard published a valuable *Essay on School Architecture*. Ten years later he republished his *Essay* with plans and descriptions of numerous schoolhouses which

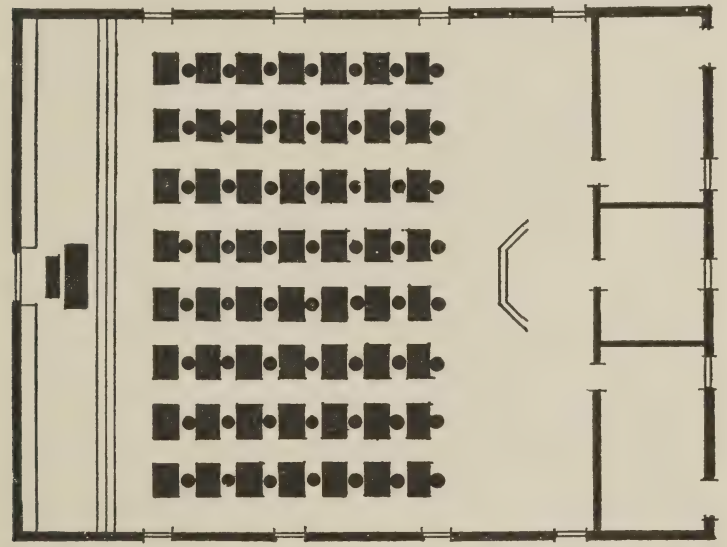

FIG. 33. — One-room school floor plan recommended by Dr. W. A. Alcott in 1830.

had been erected under his direction in Rhode Island and Connecticut. He also embodied in his publication plans and valuable building data furnished by Horace Mann and others. This volume contained the plan of the schoolroom recommended by Dr. Alcott in his *Prize Essay* and was substantially the same as that proposed by Horace Mann in 1838.

This building as planned contained one room, 40 by 30

feet in size, with a separate seat and desk for each of fifty-six pupils. The teacher's platform, from one to two feet high, was reached by ascending steps. Back of the platform were spacious cabinets for books and apparatus. There were separate entrances for boys and girls, each leading into a room for wraps. Between the two coat or wrap rooms was a small room which was used as a recitation room, a teacher's or pupils' retiring room, or on occasion as a place to interview parents. The school was heated by a stove in the main room or by a furnace in the basement and was ventilated by openings in the ceiling. The schoolroom was lighted by four windows on each side of the room. This plan was devised to overcome most of the disadvantages and shortcomings then existing in schools. Its publication and general dissemination undoubtedly had a marked influence on school architecture throughout the country and particularly in rural districts.

Infant or primary school buildings. With the introduction of the infant school in 1816 and its development into the primary school, younger children were housed in one-room schools, which could be erected in numbers sufficiently large to bring the facilities of the primary school to each neighborhood, without requiring small children to walk too great a distance. In Providence the primary school was housed on the first floor of the grammar school. In New York the schools of primary grade were either provided for on the first floor of the grammar schools under the title of Primary Departments or in public primary schools devoted exclusively to these grades.

In Boston in 1847 a three-story primary school, the

Ingraham Primary School, was erected. Each story contained a schoolroom with two small recitation rooms adjoining and the entire building was devoted to children of the primary grades. Horace Mann pronounced this building as "perfect of its kind" and said, "It might well be called the model schoolhouse of the state, and in schoolhouses Massachusetts is a model for the World."

Grammar school buildings. The typical city grammar school building before 1848 followed the general plan

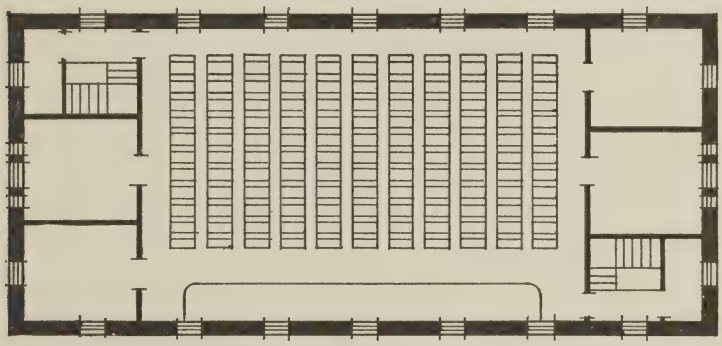

FIG. 34. — Second-floor plan of Jefferson Grammar School, Philadelphia, 1836.

of the old English grammar school. It embodied large assembly rooms and, in its later development, recitation rooms adjoining for the use of assistant teachers. This plan was especially well adapted to the requirements of the double-headed reading and writing school organization which was first introduced in Boston in 1789, and prevailed quite generally throughout the country until after 1848. In some cities two-story buildings were erected, but the three-story building was the most

popular type. Frequently in such buildings the first floor was reserved for pupils of the primary grades, while the large halls and recitation rooms on the second and third floors were used by the reading and writing schools respectively.

The Jefferson Grammar School erected in Philadelphia in 1836 was a typical three-story building. The first story was reserved for the primary school, the second for the girls' department of the grammar school, and the third for the grammar school boys.

A typical Boston school of this period was the Brimmer Grammar School, erected in 1843. This was a three-story building, 74 by 50 feet. The first floor was divided into two small rooms and one larger room, $30\frac{1}{2}$ by 50 feet, for the use of the primary school. The floor plans of the second and third floors were alike. The two upper floors had large halls 70 feet by 37 with two small recitation rooms. The larger rooms were lighted from three sides, and contained 118 desks with two chairs each. The writing school was housed on the top floor and the reading school on the floor below.

Lancasterian schoolhouse. The introduction of the Lancasterian Monitorial System brought with it certain architectural changes. However, the method of instruction of the new system, which made necessary the grouping of large numbers of pupils in one room, harmonized with the "assembly hall" type of structure generally in vogue in cities before the middle of the nineteenth century. The *Manual of the System of Primary Instruction Pursued in the Model Schools of the British and Foreign School Society*, published in 1839, gave minute directions in regard

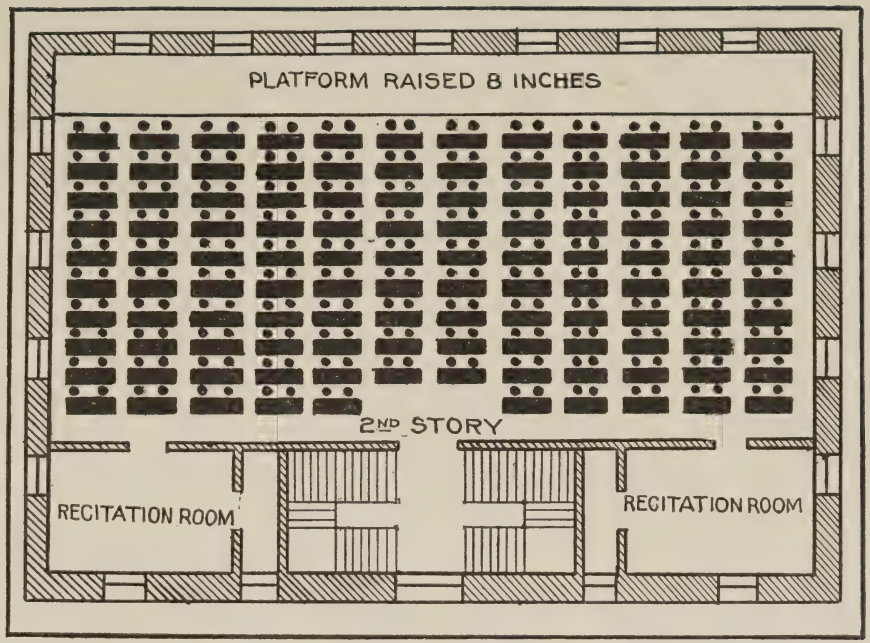

FIG. 35. — Second-floor plan of Brimmer Grammar School, Boston, 1843.

to the arrangement of schools for mutual or monitorial instruction. The form of the room must be a parallelogram about twice as long as wide. The plan of room required to seat fifty-six pupils shows the chief characteristics of a monitorial schoolroom. The middle of the hall is occupied by forms and desks for all pupils. The semicircles on each side of the room mark the position of the reading classes while they are under the

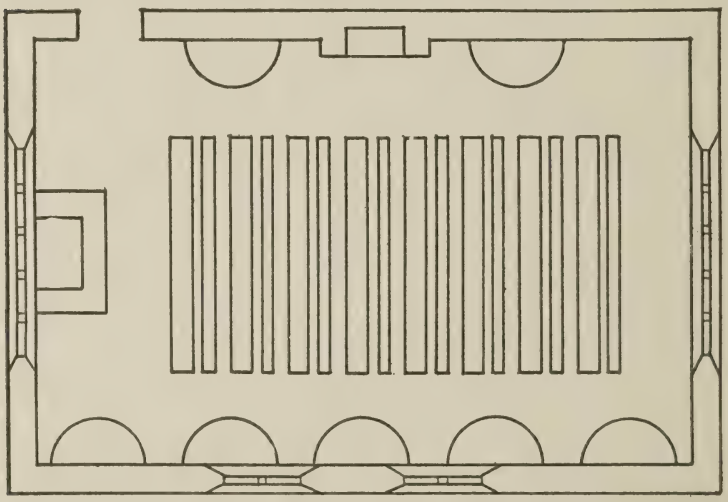

Fig. 36. — Floor plan of a monitorial school.

instruction of monitors. The dimensions of a schoolroom for 300 children must be 62½ by 34 feet; for 200 children, 55 by 28 feet; and for 150 children, 52½ by 25 feet.

The Lancasterian plan was very popular in the early part of the nineteenth century, but by 1845 it had been modified to a great extent and in its place had been adopted a mixed plan, which was applied quite

generally in schools and buildings not primarily arranged for the monitorial system.

IV. The Movement toward Segregation and Graded Schools

A parallel movement. The evolution of the graded school organization in America paralleled very closely the development of school architecture and the erection of school buildings. In those communities which possessed nothing but a one-room structure, the school was of necessity ungraded, and the instruction was largely individual. As soon as a school district found it possible to provide two or more buildings, it became possible to classify pupils in rough grade-age groups designated by such terms as *primary*, *intermediate*, and *grammar*. Segregation of this sort was in vogue as early as 1820, and was quite general in cities by 1845.

If a building contained several rooms and a large number of pupils, the next step toward the development of graded schools was possible. This step involved the segregation of all the pupils in the building on the basis of age and achievement. In cities where reading and writing schools prevailed such segregation was readily brought about. In reading and writing schools the master, his assistants, and the ushers each gave instruction to separate groups. In the early days the various groups were taught in different corners of the large assembly hall, but in a later period a part of the classes were provided for in small recitation rooms adjoining the large hall. The Brimmer Grammar School, the floor plan of which is shown on page 117, is an example of a building in which segregated groups

of pupils were given instruction simultaneously in a large hall and in the small recitation rooms adjoining.

The final step in the development of the graded school organization was dependent upon the erection of a building in which it would be possible to segregate all pupils in the school in small age-grade groups, each under the continuous instruction of one teacher. This innovation in school architecture perforce carried with it the abandonment of the wasteful reading-writing school organization, and the substitution of instruction in small age-grade groups. It also marked a turning point in elementary school architecture. Thereafter the English idea of grouping all school activities in or around a central assembly hall was to be gradually abandoned and the assembly hall replaced by the small grade room as the prominent architectural unit. Large halls were included in elementary school buildings for many years thereafter, and in recent times are coming back into prominence as auditoriums for socialized instruction, as well as for community use, but the small room which was developed for the graded school still is the outstanding unit in elementary school architecture.

Two Boston schoolhouses. The substitution of the graded plan for the prevailing reading-writing school organization was a radical departure from established procedure. It must not be assumed that the reorganization came about quickly or without opposition. Schoolmasters then as now were conservative and held tenaciously to established standards. The graded school idea long had been discussed by prominent educators, and also had had the sanction of successful ex-

perience abroad, but it did not find expression in this country in actual school practice until 1848. In that year a unique situation arose in Boston. Two new grammar schools radically different in architecture were completed and ready for organization. One, the Bowdoin Grammar School, built along traditional lines, was organized in harmony with the

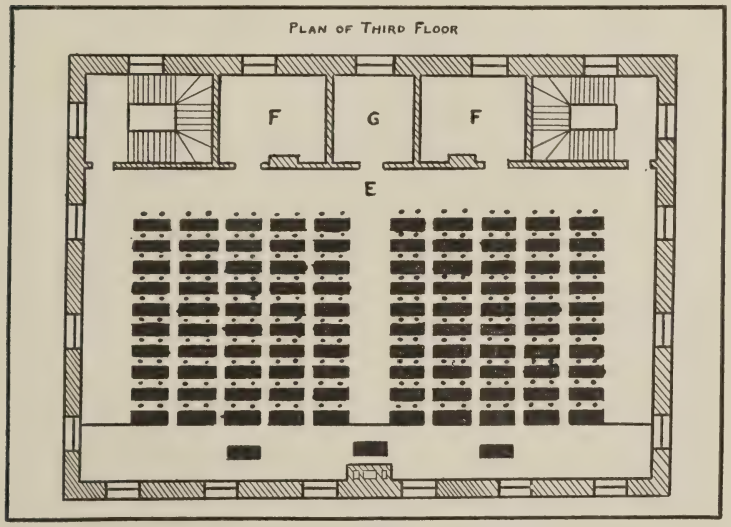

FIG. 37. — Third-floor plan of Bowdoin Grammar School, Boston, 1848.

old ideals. The second, the Quincy Grammar School, was built along new lines, and organized in accord with the theories underlying the graded school idea. The erection and organization in the same year of these two opposing types of elementary schools furnished convincing evidence that in Boston in 1848 school authorities were far from being unanimous in their approval of the new graded plan.

The Bowdoin Grammar School was a three-story structure, the third floor of which included a hall, 38 by 72 feet, with seats for 180 pupils. Adjoining the hall were two small recitation rooms and a small library room.

The second floor was divided into two rooms, each with seats for 90 pupils, together with two recitation

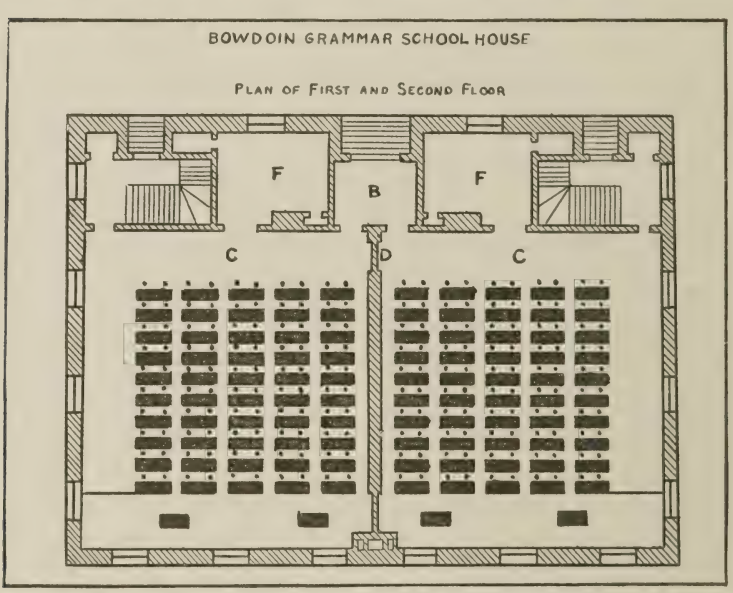

FIG. 38. — First- and second-floor plan of Bowdoin Grammar School, Boston, 1848.

rooms, and a small room for a library. The first floor corresponded to the second, except that each room on the first floor had a capacity of 100 pupils.

The Bowdoin School was a girls' school, and contained two distinct departments, the grammar (reading) department and the writing department, each with

a separate and independent master. There were four assistant female teachers in each department, independent of the master and teachers of the other department. The master of the grammar department and two of his assistants occupied the large hall on the third floor. Two other assistants occupied one of the rooms on the first floor. The master of the writing de-

Fig. 39. — Quincy Grammar School, Boston, 1848.

partment and two assistants occupied the rooms on the second floor, and two other assistants the second room on the first floor. The school was divided into five classes and each class into two divisions. One week the first division of each class attended the grammar department in the morning, while the second division attended the writing department. In the afternoon the second division attended the grammar department and

the first division the writing department. The following week the order was reversed.

The Bowdoin Grammar School, therefore, with slight modifications, might be considered a typical reading and writing school of the traditional type. Its

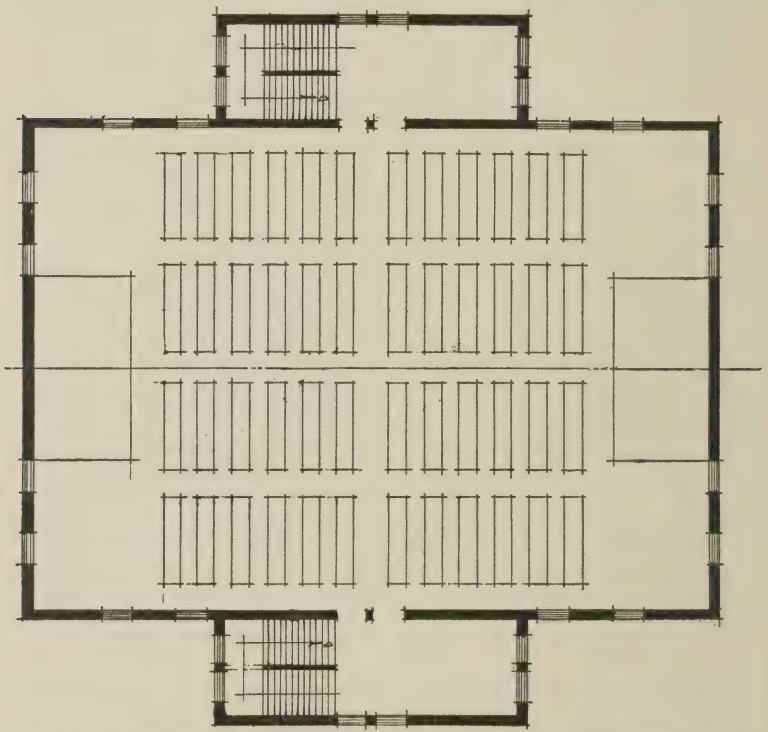

FIG. 40. — Fourth-floor plan of Quincy Grammar School, Boston, 1848.

organization in 1848 shows that the influence of the conservatives was still strong, and that the Quincy Grammar School, organized in the same year, must have been a concession to the progressives and in the nature of an experiment.

The Quincy Grammar School was a four-story building. The fourth floor was occupied by a large hall with seats for 700 children. Above this floor was an attic for physical exercises. The third floor was divided by

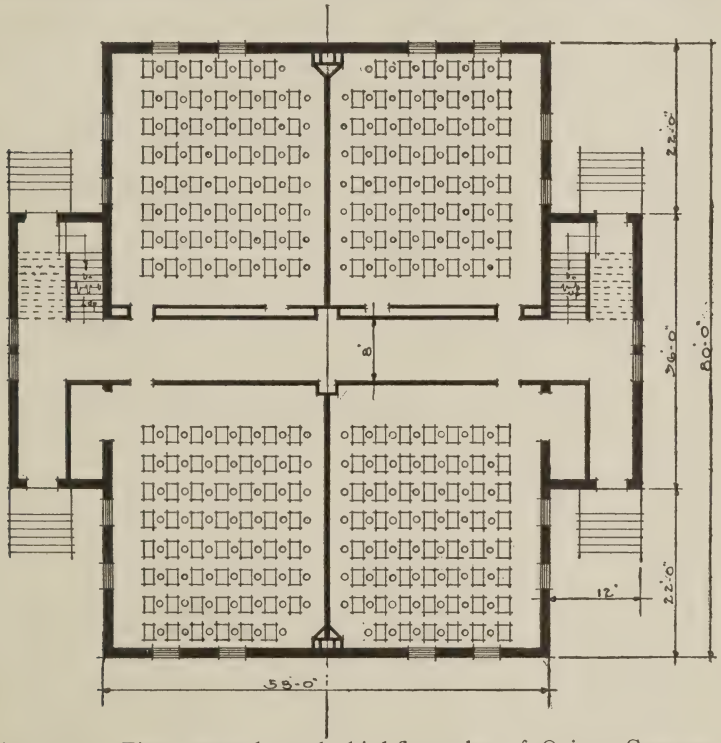

FIG. 41. — First-, second-, and third-floor plan of Quincy Grammar School, Boston, 1848.

a corridor 8 feet wide with two small rooms on each side. The rooms were $31\frac{1}{2}$ by $26\frac{1}{2}$ feet and each contained desks and chairs for 56 pupils. Two of the schoolrooms had small rooms (10 × 11) adjoining to provide for the children's wraps. The other two

schoolrooms were provided with inside closets for the same purpose. Each room had composition blackboards, and each desk had an inkstand with a revolving metal cover. The second and first floors were duplicates of the third. This building was built to house the new graded school organization. The complete school was divided into four classes and each class of 168 pupils into three divisions. On the third floor were housed the first division of the first class under the principal, and the several divisions of the second class. On the second floor the sub-master instructed the second division of the first class, with the several divisions of the third class under his assistants. On the first floor the usher instructed the third division of the first class and his assistants taught the several divisions of the fourth class. The entire school assembled in the large hall on the fourth floor for devotional and general exercises.

The Quincy Grammar School was described in 1874 by its principal, John D. Philbrick, as follows: [1]

(1) It was large. Up to this time a grammar school with 400 pupils was considered very large. This building had 660 seats in the school rooms exclusive of the halls.

(2) It contained a separate schoolroom for each teacher, 12 in all, and of course, recitation rooms were not needed.

(3) It contained a hall large enough to seat comfortably all the pupils that could be accommodated in the schoolrooms, and even more.

(4) It contained a clothes room attached to each schoolroom.

(5) It contained a separate desk and chair for each pupil, this being probably the first grammar school house, here or elsewhere, so far as I know, into which this feature was introduced.

[1] PHILBRICK, J. D., *Twenty-ninth Semi-annual Report* (September, 1874), pages 10–12.

(6) It was four stories high — the first of this height — the hall covering all of the fourth story.

All the grammar school houses since built in this city are of this type. Modifications and improvements, more or less important, have been from time to time introduced, but the type has not changed.

The erection of the Quincy Grammar School marks a distinct epoch in American education, because it established a new standard of grammar school architecture, which brought with it a new type of grammar school organization.

If we place beside this description of the Quincy Grammar School of 1848, a description of a typical present day grammar school, we cannot fail to notice a great similarity. For it is true that the box-like school structures which dot the landscape all over our land and which with minor modifications are still being erected in villages, towns, and cities, are, to all intents and purposes, replicas of this old school built seventy-five years ago. To be sure, styles in school architecture have changed and we now seldom erect three- or four-story buildings. Further, by various devices we have made our schools more healthful and comfortable, but the general space distribution does not materially differ from that of the old school of 1848.

V. Important Factors Influencing the Development of Elementary School Architecture

The development of elementary school architecture in this country since 1850 has been influenced largely by three factors:

(1) Changing educational ideals and aims as expressed in the curriculum and methods of instruction.

(2) Growth of scientific knowledge in regard to health.

(3) Considerations involving the safety of children while attending school.

Changing educational ideals and aims. School architecture of the present day had its beginnings in ecclesiasticism. The schoolhouse evolved from the

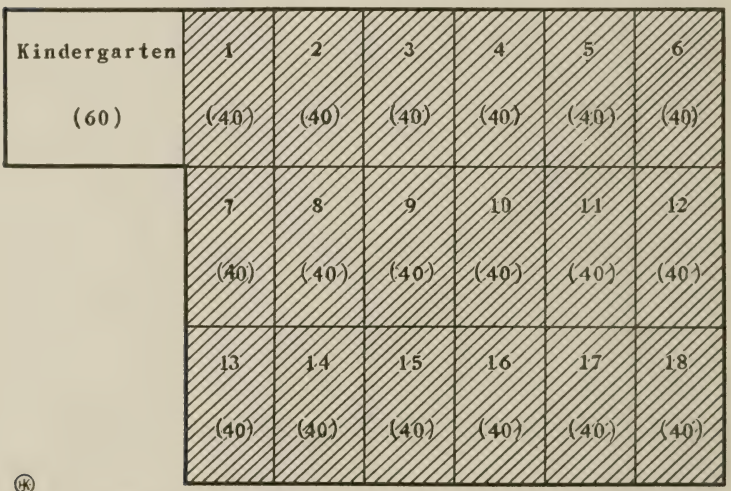

FIG. 42. — Plan of traditional elementary school building prior to 1900.

church and still has characteristics which point to its religious origin. All of the old churches and many modern ones have towers and spires. Most schoolhouses erected over a quarter of a century ago also have these architectural features.

As long as the individual method of instruction prevailed generally, it had little influence on school architecture. With the coming of the monitorial system, as we have seen, rooms were made larger and

seating arrangements were adjusted for group work. The graded system brought still another radical change as exemplified in the Quincy Grammar School, 1848.

The effect upon school architecture of the expansion of the curriculum from 1850 to 1924 is clearly indicated by the evolution of elementary school buildings in Detroit during that period.

Before 1870 the *hall* idea in school buildings as illustrated by the fourth floor of the Quincy Grammar School had begun to disappear. Soon after 1875 the prevailing styles in elementary architecture shifted from three-story to two-story buildings comprising a number of classrooms of uniform size.

Prior to 1900 there was no deviation from this plan, except to provide a special room for the kindergarten. Buildings of this period may be diagrammatically shown, as in Figure 42.

This cut represents a building of eighteen classrooms with the kindergarten as an added facility. Previous to 1906 a regular classroom was used for the kindergarten, but after that date a room especially arranged for the kindergarten was included in the plans.

In the two decades following 1900, the introduction of manual arts and home economics resulted in the expansion of the traditional building to provide for instruction in these new subjects. Figure 43 shows the space distribution in a building of this period.

The shaded area indicates that portion of the space (exclusive of the kindergarten) which is in continual use. The unshaded portions on the right indicate space which serves to increase instructional space, but does

not add to capacity. Rooms for manual arts and home economics were usually provided on the basement floor.

In the period from 1918 to 1922, influenced by the great social aims in education, and in response to the requirements of the platoon type of organization, elementary school architecture in Detroit was radically modified. To the floor space of the schools of the

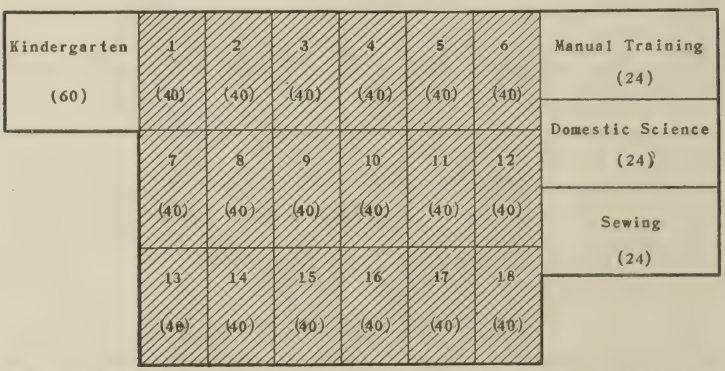

FIG. 43. — Plan of traditional elementary school building (1900–1918). Capacity 720 children, exclusive of kindergarten.

previous period were added a library, an auditorium, a gymnasium, and an indoor playroom.

Figure 44 shows the space distribution in the enlarged building. The shaded portion indicates the space regularly occupied by pupils while the unshaded portions (except kindergarten) show auxiliary or supplemental space, which, as has been previously shown (page 53), with the traditional grammar school organization in operation, does not add to the school's capacity.

Health. Before Henry Barnard wrote on the sub-

ject in 1848, very little attention had been paid to the demands of hygiene and sanitation in housing school children. If we contemplate the environment in which our great-grandfathers and grandmothers received their schooling, we find that the outstanding features are the small, unsanitary, poorly ventilated, badly heated, and inadequately lighted schoolrooms with their hard, uncomfortable, unhygienic seats and desks. This was true not only of the schools of colonial days, but also of the district schools before 1840. The reports of superintendents of schools from 1844 to

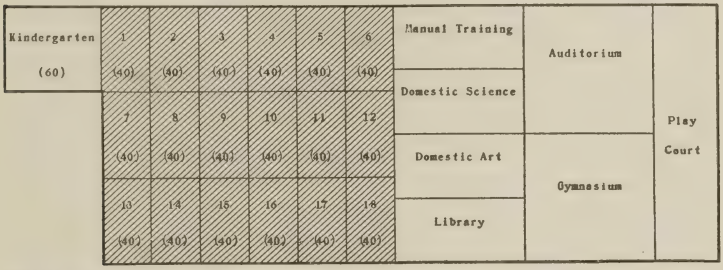

FIG. 44. — A school organized on the non-platoon plan. Capacity 720 pupils, exclusive of 60 in kindergarten.

1848 show an appalling condition. Horace Mann stated in 1846 that "stables for cattle and the folds for sheep were superior to the houses provided for school children." In New York state in 1844 over three thousand schools were reported as "unfit for man or beast." Over six thousand school buildings in that state had no toilet facilities whatever and [1] "parents who desired to preserve the health and morals of their children excluded them from the dis-

[1] Report of Hon. Samuel Young, Superintendent of Common School, N.Y., 1844.

trict schools and provided instruction of a private nature."

It was against such conditions that Mann and Barnard made their fight, and the principles of sanitation laid down by Barnard in his *School Architecture* (1848) set the standard for years to come. Many of the ideals which Barnard set up are still to be realized in rural schools in some parts of the country; but an awakened public conscience and a better understanding of the laws of health and hygiene have brought with them better lighted, heated, and ventilated buildings; more hygienic seats and desks; sanitary drinking fountains; convenient toilets and lavatories; shower baths; swimming pools; school clinics; lunch rooms with wholesome food; gymnasiums and ample outdoor space for physical development, healthful games, and play. All of these changes are embodied in the most modern buildings in progressive communities.

Safety. In the early days of school architecture, the factor of safety seems to have been overlooked. We read of school buildings dangerously placed on or near the highway, of cracked stoves and chimneys, of falling plastering, and of buildings in a dangerous and dilapidated condition. Schools in large towns and cities were often built three or four stories high, of non-fireproof material, with steep, narrow stairways, and without fire escapes. Not infrequently on the top floor of one of these high buildings, an auditorium was provided, in which as many as seven hundred people were at times assembled.

The ideal of safe living has made slow progress in this country. There are even today, in our most en-

lightened communities, many three-story non-fireproof buildings of the old type. However, a marked change is taking place. Public opinion, crystallized in the form of building codes and safety regulations, is rapidly improving the quality of buildings. Old structures, which for financial reasons cannot be abandoned, are being made less hazardous by such safety devices as fire walls and doors, sprinkler systems, and fire escapes. The best modern fireproof school buildings are now models of safety with numerous exits, broad stairways, spacious halls, and heating plants isolated from the building in which the pupils are housed.

The best twentieth century structures, as exemplified in the Detroit buildings of the period from 1918 to 1923, not only adequately serve the requirements of present day school organization and instruction, but in addition provide a physical environment in which children can receive instruction under healthful and safe conditions.

VI. Adapting the School Plant to the Organization and Curriculum

School architecture of 1848 still prevalent. In the foregoing discussion of the evolution of the elementary school building the fact was noted that, while in progressive communities school architecture has been gradually modified in response to the demands of education, health, and safety, in the country at large most of the buildings erected in 1923 are in their essential elements almost replicas of those constructed in 1848. A casual survey of schoolhouses in

towns and cities throughout the United States today leads irresistibly to the conclusion that the model of 1848, a boxlike structure comprising a group of rooms uniform in size and equipment, is still a popular model in 1924. The obvious reason for this condition is that the school organization which must function in these buildings today is fundamentally the same as the organization of the original graded school in Boston in 1848.

It has been shown that the school authorities in Detroit, actuated by a feeling that the traditional organization was obsolete and out of step with modern educational ideals, in 1919 officially adopted an entirely new semi-departmentalized form of elementary school organization, called the platoon school.

The logical correlative of a different kind of organization was a new type of school building, in which the new organization might find adequate expression. To satisfy the requirements of the platoon system, Detroit in 1919 entered upon an extensive building program.

This program included:

(1) Remodeling existing school buildings in harmony with the new organization.

(2) Planning and erecting new buildings specifically designed to meet new requirements.

Reorganization of existing buildings. As typical of the possibilities of a broader and more effective use of an old school building, the Newberry School may be considered. The first unit of this building was erected in 1887. It was adapted to the use of the new organization at a cost of $200. A large double

FIG. 45. — Newberry School.

room on the second floor was provided with a simple stage and suitable seats for 80 or 90 pupils. This serves the purpose of an auditorium. An old storage room in the basement was renovated and made usable as a playroom or gymnasium. With these minor changes, a sixteen section platoon school was made possible, and the housing capacity of the school

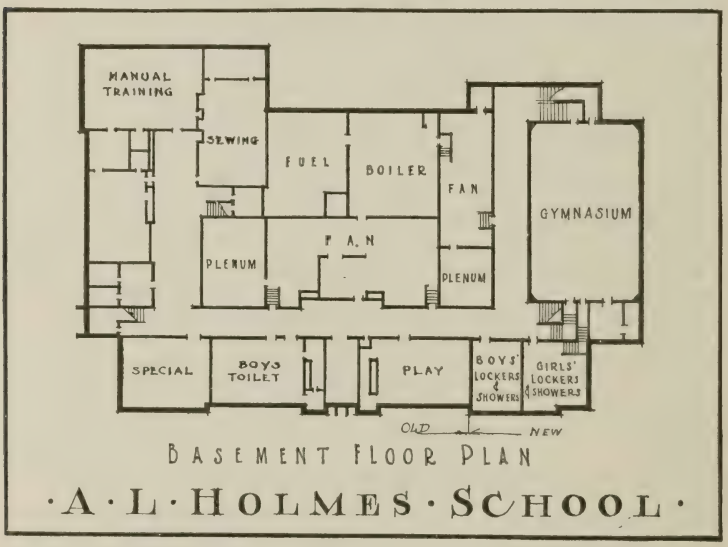

FIG. 46. — Basement plan of A. L. Holmes School.

was increased by 200. Though far from ideal, the building serves its purpose more effectively than before, and the organization of the school is very efficient.

The A. L. Holmes School was a fourteen-room building, acquired by annexation. An addition was built embracing seven classrooms, auditorium, gymnasium, library, and kindergarten. Thus the capacity of the building was increased by 560.

On the basement level the building provides a gymnasium, a playroom, locker rooms for boys and girls, manual training and sewing rooms, and an auxiliary room for a special class. On the first floor is an auditorium seating 175 pupils, an art room, a music room, two science rooms, two literature rooms, a kindergarten, two home rooms, and a special room. The

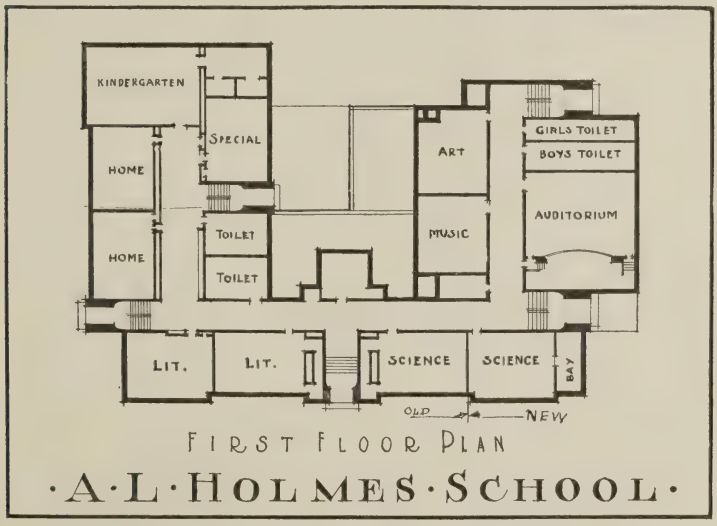

FIG. 47. — First-floor plan of A. L. Holmes School.

second floor provides for ten home rooms, a library, and a special room.

In this manner a small, inadequate building was transformed into a modern one, with every facility to meet the demands of the platoon school organization and to satisfy community needs as well.

Types of new buildings erected. The first new building erected specifically for the platoon plan was

the Pattengill, completed in June, 1921. This building, with a capacity of 1960, is a two-story structure with a basement.

The basement includes a gymnasium 44 by 66 feet, two outdoor playcourts, shower and locker rooms, a lunch room, rooms for manual arts and home economics, and rooms for literature and music. The first floor

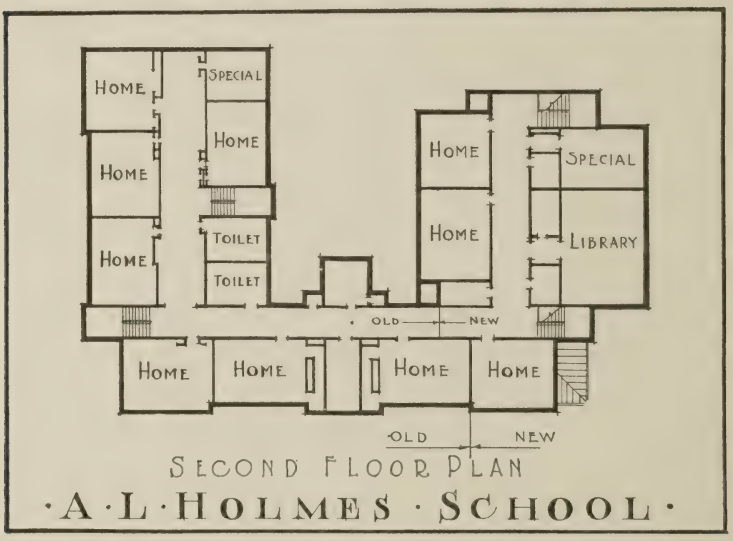

FIG. 48. — Second-floor plan of A. L. Holmes School.

includes an auditorium 44 by 47 feet, science rooms with a conservatory, art rooms, a kindergarten, and nine home rooms. On the second floor are an auxiliary auditorium, a library, and fifteen home rooms.

During the years following the erection of the Pattengill School, the platoon organization was further refined and developed, and a new building evolved in harmony with the improved organization. The first

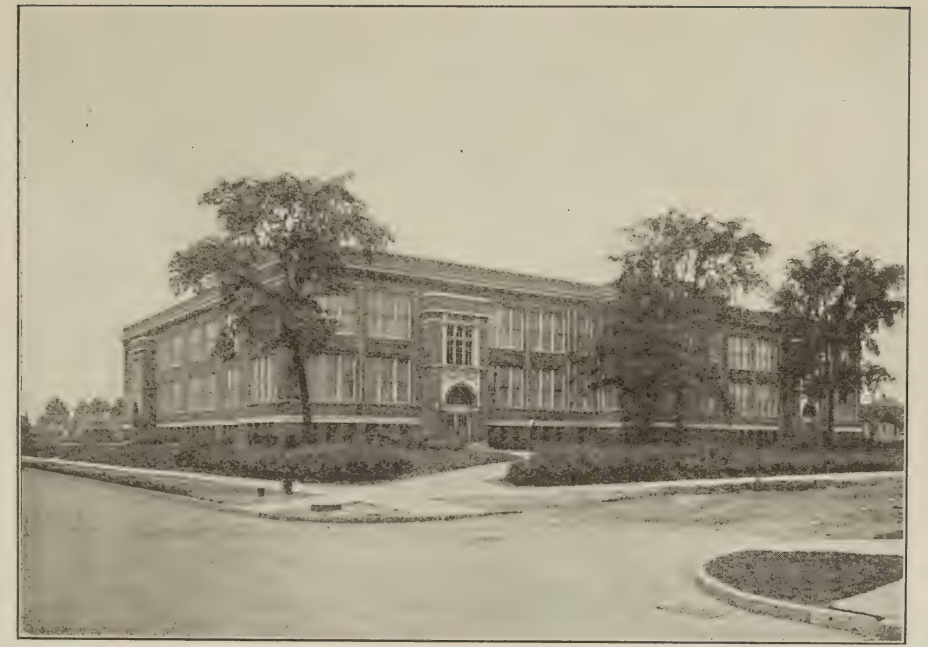

FIG. 49. — Pattengill School.

building of this type, the Duffield School, was completed in March, 1923. It is a ground level building with a total capacity of 2360. It is planned to house two twenty-four section platoon schools with additional space for special classes.

The Duffield building embodies certain features which make for efficiency in administration. All

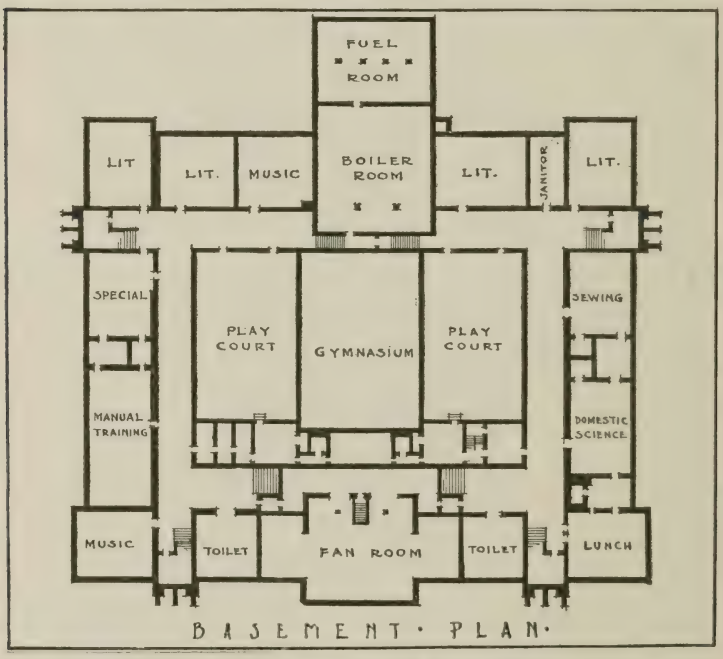

FIG. 50. — Basement plan of Pattengill School.

special activities are grouped on the first floor. The platoon organization requires a change of classes between special rooms at the end of each half hour.

All the home rooms in the Duffield School are located on the second floor. Only twice during the day, at

ten o'clock in the morning and at two o'clock in the afternoon, is there an exchange of traffic between home and special rooms. Grouping all of the pupils in home rooms on the second floor leaves the pupils undisturbed by the half-hour changes which take place on the first floor.

The outstanding features of the Duffield building are two gymnasiums with shower rooms adjoining,

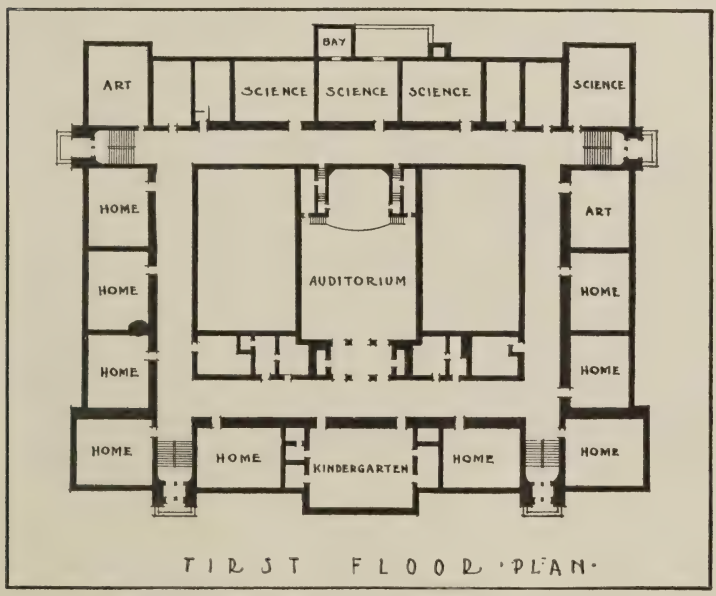

FIG. 51. — First-floor plan of Pattengill School.

two auditoriums, one seating 175 people and the other 250, a large library with an alcove for the smaller children, four science rooms with two conservatories, a double kindergarten suite, and a lunch room. The third floor is given over to facilities for an open air school.

The Duffield plan can be used only in localities where the available space is large, and where the contributing population will make necessary a school housing 2,000 pupils or more. It may be erected in sections somewhat as follows. The first section comprises twelve classrooms and kindergarten; the first and second sections, eighteen classrooms and kindergarten; the

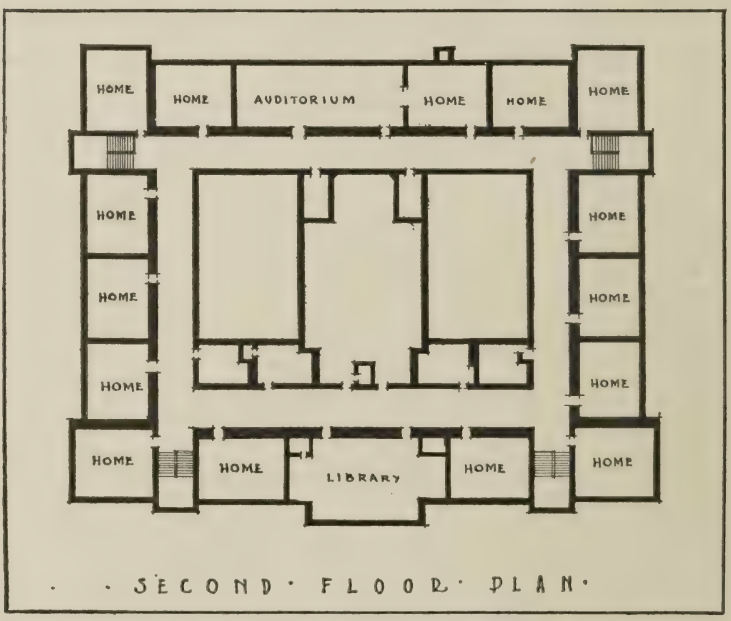

FIG. 52. — Second-floor plan of Pattengill School.

first three sections, twenty classrooms, kindergarten, library, auditorium, gymnasium, and teachers' rest room; the first four sections, twenty-three classrooms, kindergarten, sewing room, shop, art studio, two gymnasiums, two auditoriums, library, and administrative quarters.

A third phase in the development of an elementary school plan adapted to the requirements of the platoon organization is represented by the Brady type of building. While the Pattengill School exemplifies the closed court plan and the Duffield School the E type, the Brady School tends toward the H plan. It

FIG. 53. — Duffield School.

is preferred to the Duffield type because each twenty-four section unit is a complete school building architecturally and educationally. It can also be more readily oriented to different sites and lends itself to the requirements of narrower and smaller plats of ground. The capacity and facilities of a complete school of the H type are practically the same as those of the Duffield School.

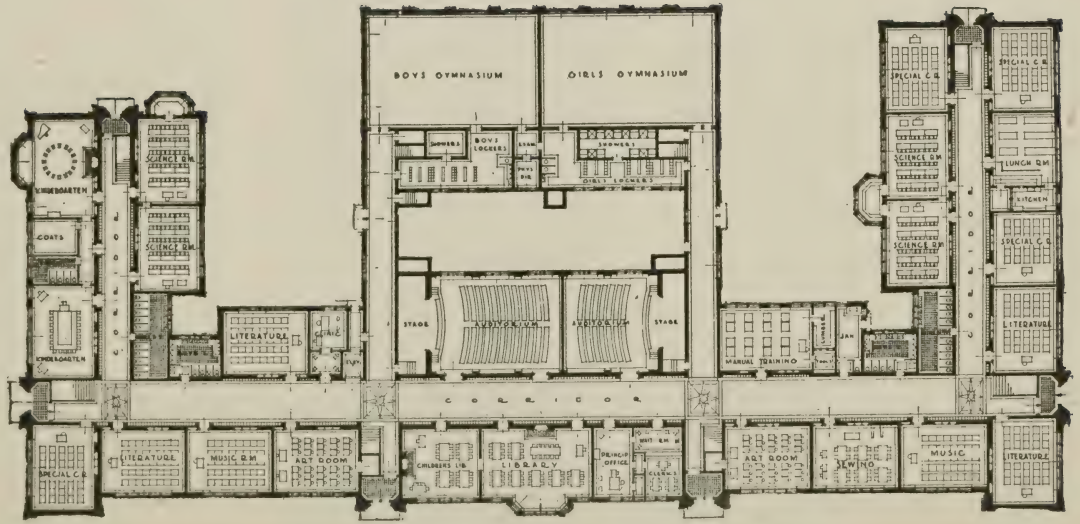

FIG. 54. — First-floor plan of Duffield School.

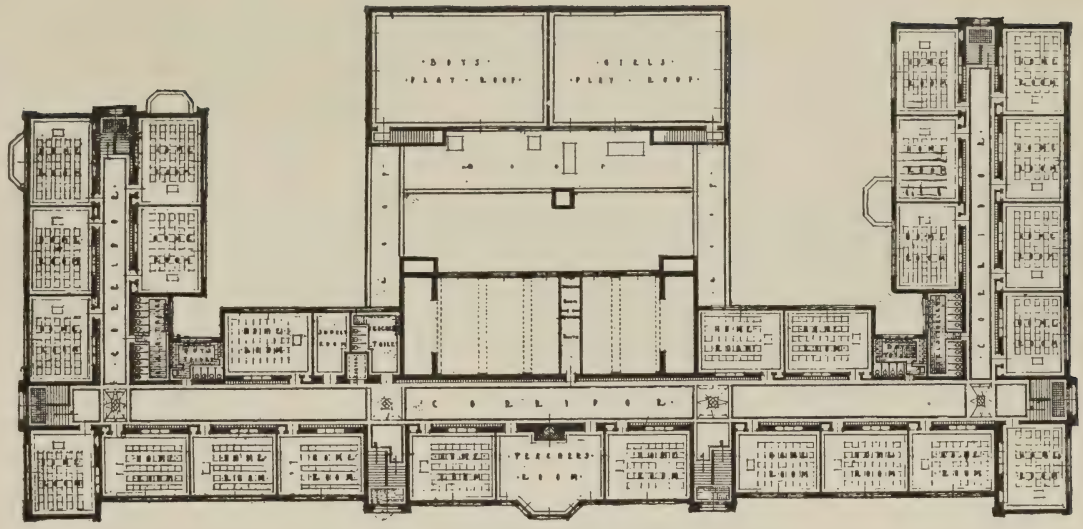

FIG. 55. — Second-floor plan of Duffield School.

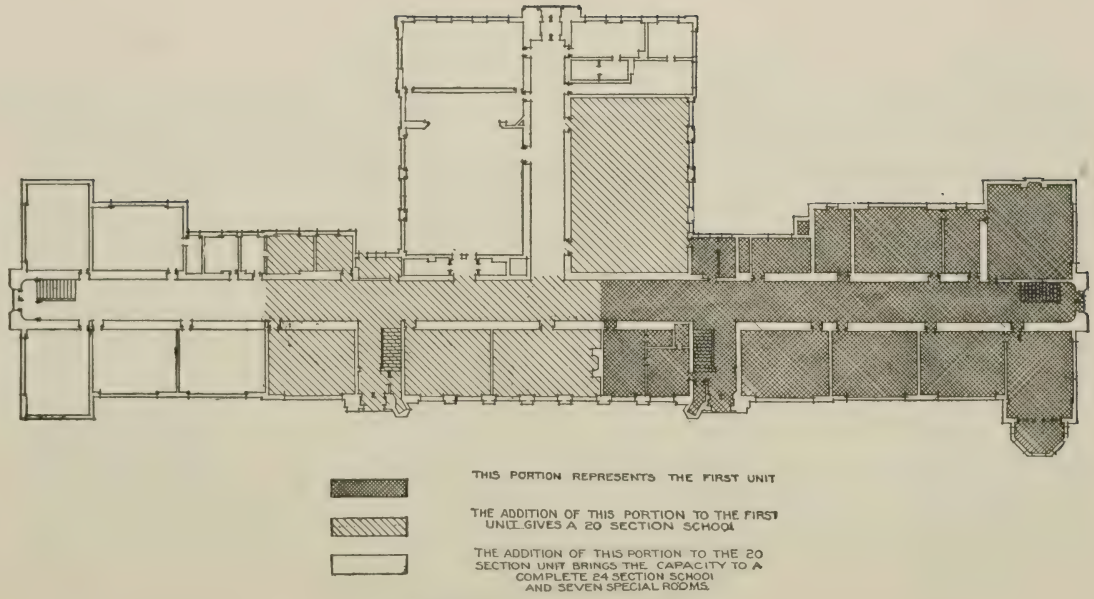

FIG. 56. — Plan of the Brady School, illustrating unit construction.

The Brady type of building may be constructed in from one to three units or sections, according to the needs of the particular neighborhood. The first unit, indicated by the crosshatching in the accompanying diagram (Figure 56), consists of twelve classrooms, a kindergarten, a small administrative office, and a large room on the second floor directly above the kindergarten, which may be used in the first unit as an auditorium. In the complete school of three units this room becomes a combination cooking and sewing room. The first unit of this building will accommodate a twelve section platoon school organization, a kindergarten, and one non-platoon room with a total capacity of 640. The Courville School (Figure 57) is representative of the first unit of an H type building.

The addition of the second unit results in a building with gymnasium, kindergarten, sixteen classrooms, auditorium, speech correction room, small administrative office unit, library, clinic, and teachers' work room. The combined first and second units will provide for a twenty section platoon organization, giving a total capacity, including kindergarten and speech correction rooms, of 940. The completion of the third unit results in a twenty-four section school with a full complement of special rooms. The maximum capacity of the Brady type of school is 1,360 children distributed as follows: twenty-four section organization, 960; kindergarten, 120; seven special rooms, 280. The speech correction room does not add to capacity.

The twenty-four section unit includes the following accommodations:

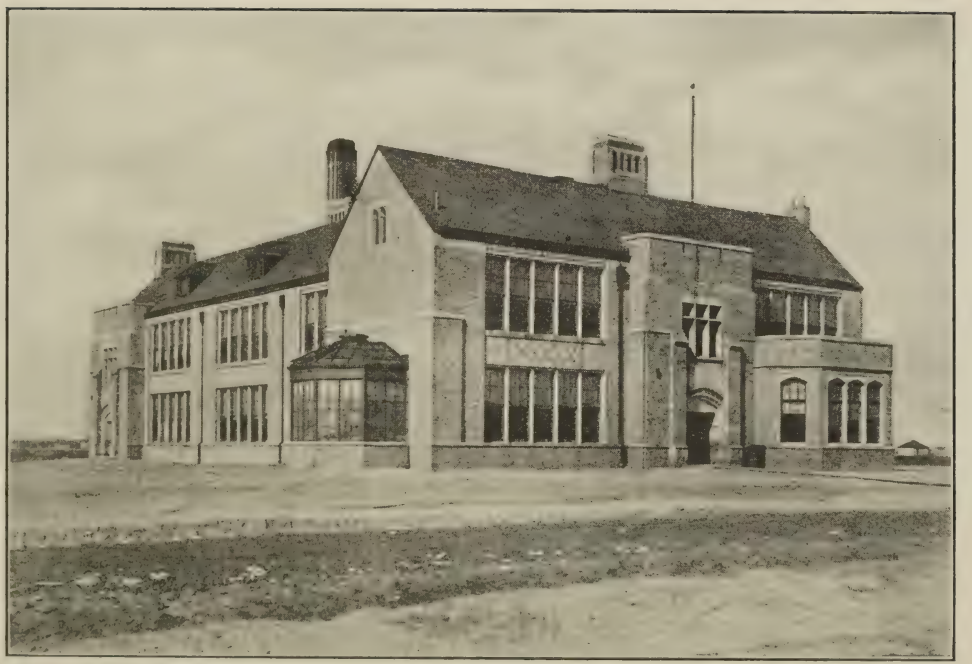

FIG. 57. — The Courville School. The first unit of a twenty-four section school. This unit accommodates twelve sections.

FIRST FLOOR

1	Auditorium	40′ × 54′
1	Gymnasium	40′ × 60′
1	Boys' locker and shower rooms	18′ × 24′
1	Girls' locker and shower rooms	12′ × 36′
1	Corrective gymnasium	23′ × 41′
5	Special rooms	22′ × 30′
1	Manual training room	22′ × 32′
1	Art room	22′ × 30′
1	Music room	22′ × 30′
2	Literature rooms	22′ × 30′
2	Science rooms and conservatory	22′ × 30′
1	Library	23′ × 38′
1	Kindergarten	28′ × 32′
1	Kindergarten toilet and cloak room	12′ × 26′
1	Clinic	12′ × 26′
1	Administration suite	23′ × 30′
1	Physical director's office	14′ × 22′
2	Boys' toilets	13′ × 22′ and 12′ × 14′
2	Girls' toilets	18′ × 28′ and 12′ × 12′
1	Janitors' room	8′ × 16′

SECOND FLOOR

12	Home rooms	22 × 30′
1	Open window room	22′ × 30′
1	Speech correction room	12′ × 30′
1	Cooking and sewing room	28′ × 32′
1	Teachers' study room	23′ × 38′
1	Special classroom	23′ × 41′
1	Kitchen	14′ × 20′
1	Lunch room	25′ × 40′
2	Boys' toilets	8′ × 22′ and 13′ × 22′
2	Girls' toilets	18′ × 28′ and 12′ × 12′
1	Women teachers' rest room	14′ × 22′
1	Janitors' room	9′ × 12′

All the important units in buildings erected for the platoon organization have been standardized.

Standard units of platoon school building. The platoon organization is constantly being refined and modified in the light of research and changing conditions, and the building, in harmony with these modifica-

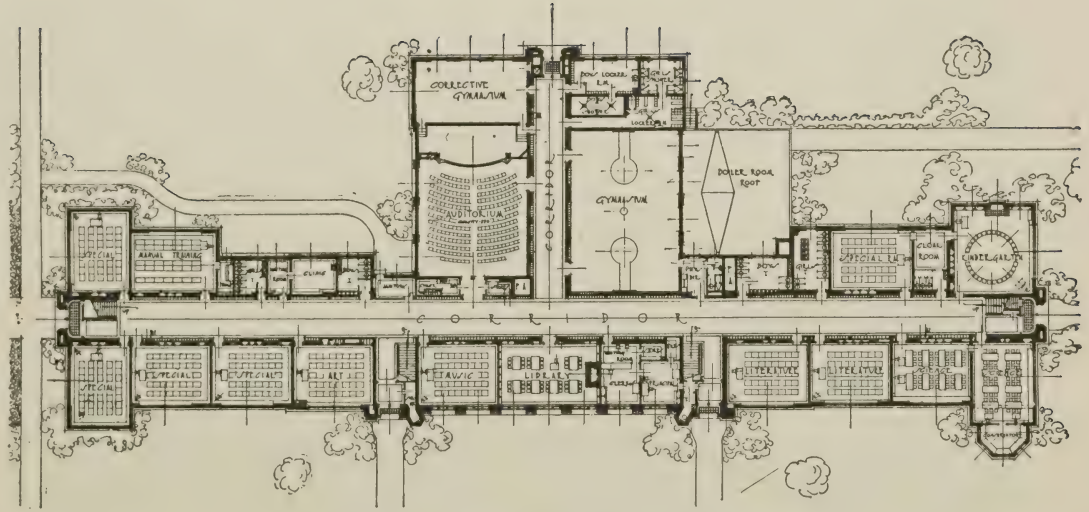

FIG. 58. — First-floor plan of Brady School.

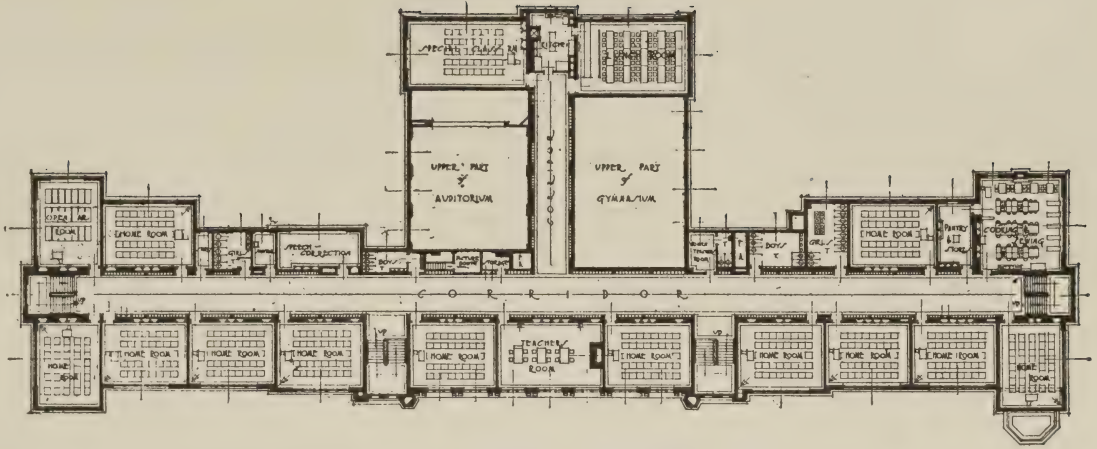

FIG. 59. — Second-floor plan of Brady School.

tions, is being changed to meet new demands. However, the principal instructional and auxiliary units in the building are, within limits, becoming standardized. The Board of Education has officially decreed that classrooms shall be constructed to seat a maximum of forty pupils. This rule is being embodied in all school construction.

The essential units in the Duffield School building, which exemplifies the most advanced ideas in the planning of buildings in Detroit, are

I. Instructional units:
   (*a*) Home rooms.
   (*b*) Gymnasiums, showers, and locker rooms.
   (*c*) Playrooms or courts.
   (*d*) Auditoriums.
   (*e*) Libraries.
   (*f*) Kindergarten rooms.
   (*g*) Science rooms and conservatories.
   (*h*) Literature, music, and art rooms.
   (*i*) Manual and industrial arts and home economic rooms.
   (*j*) Special rooms (open-window, for defectives, etc.).

II. Auxiliary units:
   (*a*) Administration rooms.
   (*b*) Clinics.
   (*c*) Lunch rooms.
   (*d*) Teachers' rooms.
   (*e*) Corridors with lockers.

Instructional units. — (*a*) *Home rooms.* Home rooms are 22 by 30 feet in area, provided with built-in cupboards, storage space for supplies, and a wardrobe for teachers. A strip of corkboard for display purposes is placed above all blackboards. The seating capacity is forty pupils.

(*b*) *Gymnasiums.* The Duffield plan includes two gymnasiums 40 by 60 feet with locker and shower accommodations 19 by 29 feet for boys and girls separately. This unit also includes a physical director's office and examination room. The locker units have their own toilet facilities. Each gymnasium has a capacity of eighty pupils.

(*c*) *Playrooms.* The entire area above the gymnasiums, in the Duffield School plan, is devoted to open window play space. It is reached by stairways ascending from the health units below. The playroom capacity equals that of the two gymnasiums combined.

FIG. 60. — Plan of home room.

(*d*) *Auditoriums.* On the first floor are two auditoriums, the smaller one 34 by 45 feet and the larger one 34 by 54. The stage in the smaller auditorium is 12 feet deep, while that in the large auditorium is 14 feet. Both stages are equipped with foot and border lights. The large auditorium has a small gallery for spectators with a picture booth in the rear. This booth may be utilized for projection in either auditorium. The capacity of the smaller auditorium is 200 and that of the larger one 300. Both are well adapted to the requirements of platoon school work and the larger one is suitable for community purposes.

(*e*) *Libraries.* The library suite comprises a standard size library, 22 by 44 feet, with bay window, and a

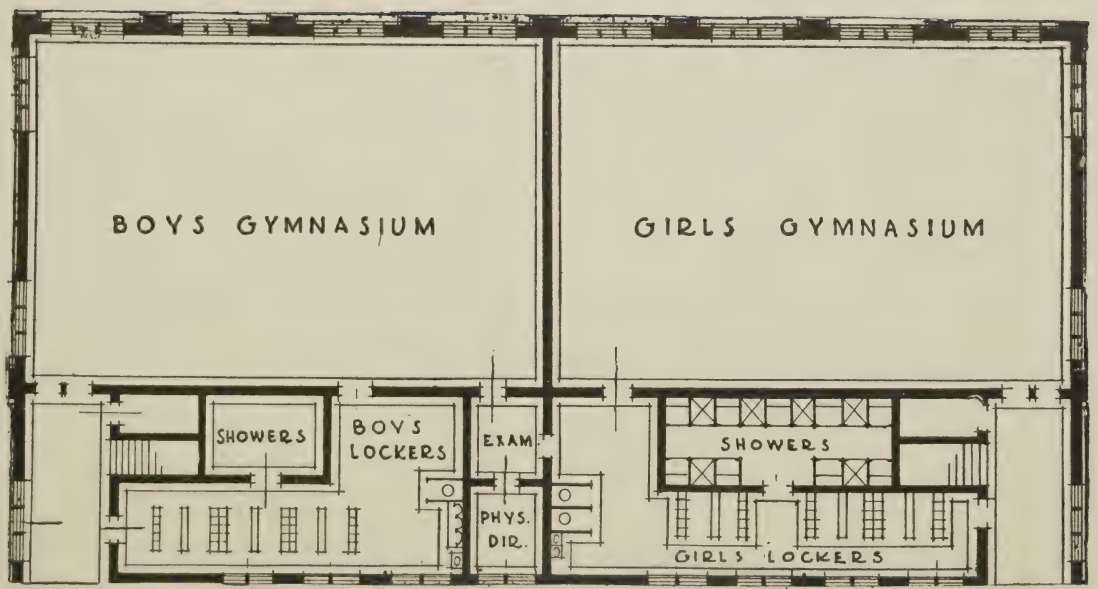

FIG. 61. — Plan of gymnasiums.

FIG. 62. — Plan of playrooms.

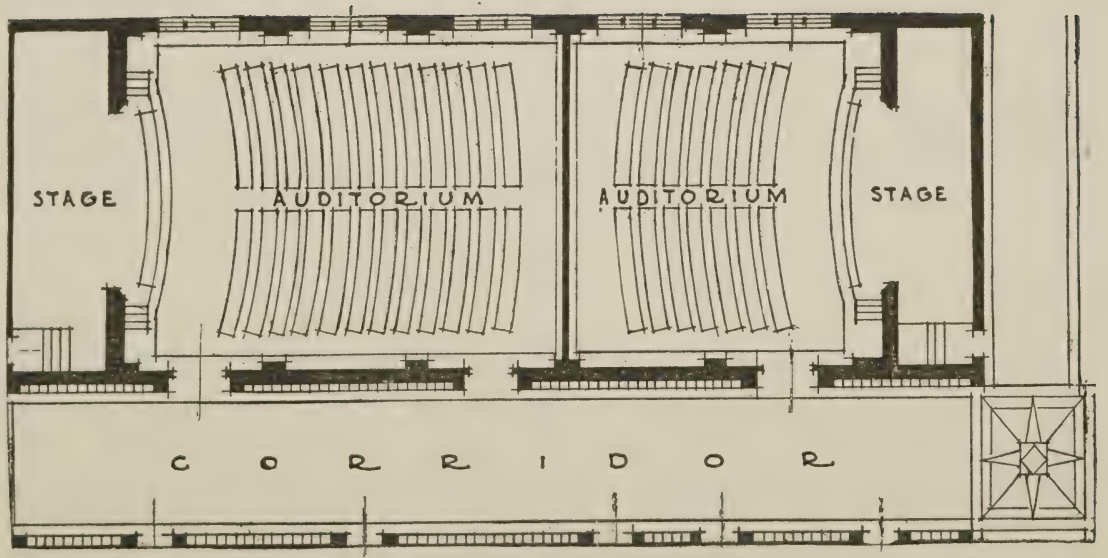

FIG. 63. — Plan of auditoriums.

smaller library 22 by 28 for younger children. These rooms are provided with approved built-in library shelves and magazine racks, with ample corkboard areas for display purposes. A fireplace and suitable library furniture add to the general effectiveness of these units.

(*f*) *Kindergarten suite.* The kindergarten facilities provided in the Duffield plan consist of a suite of rooms, which includes a large kindergarten room, 22 by 30 feet,

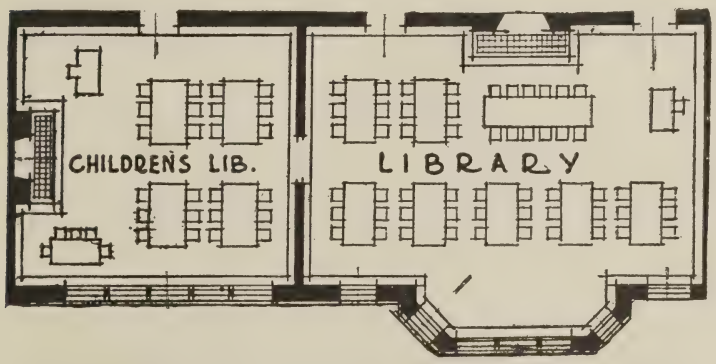

FIG. 64. — Plan of libraries.

with bay window, fireplace, and ample built-in cupboards for storage; a small kindergarten room 22 by 30 feet; and between the two kindergarten rooms a room for wraps and a toilet room reserved for the use of kindergarten children exclusively. The capacity of this suite is 120 pupils.

(*g*) *Science rooms with conservatories.* The large Duffield building includes two science room suites — one on each wing of the building, since it is desirable that the conservatories have a southern exposure. The two types of science suites now in use are indicated in the accom-

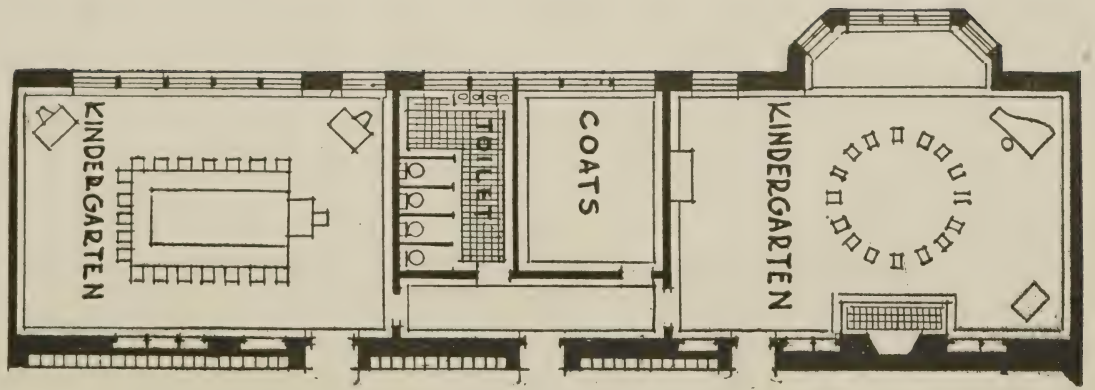

FIG. 65. — Plan of kindergarten suite.

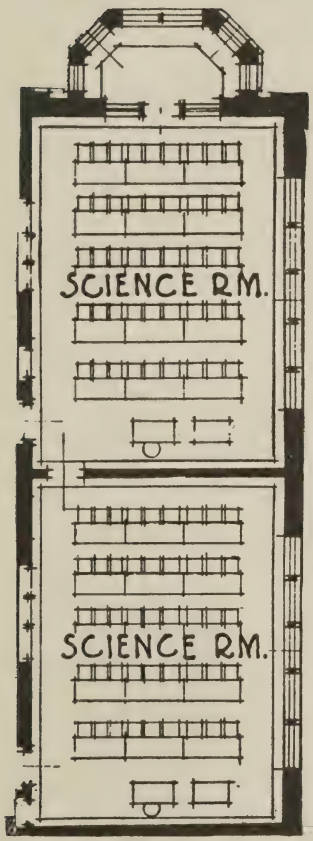

FIG. 66. — Plan of science rooms, showing conservatory.

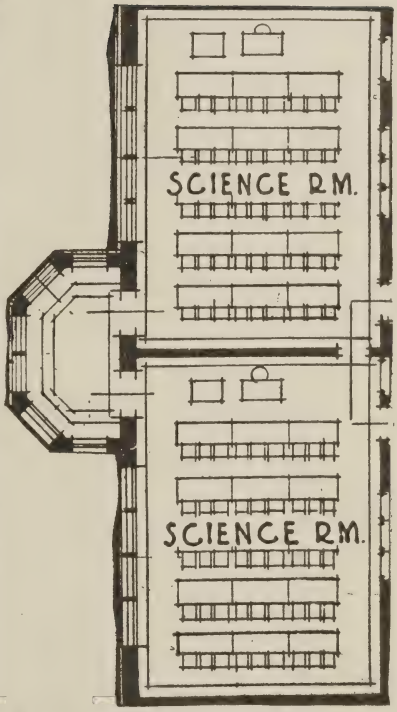

FIG. 67. — Plan of science rooms, showing conservatory.

panying floor plans, Figures 66 and 67. In the first instance the conservatory is entered by doors leading to each of the science rooms. In the other

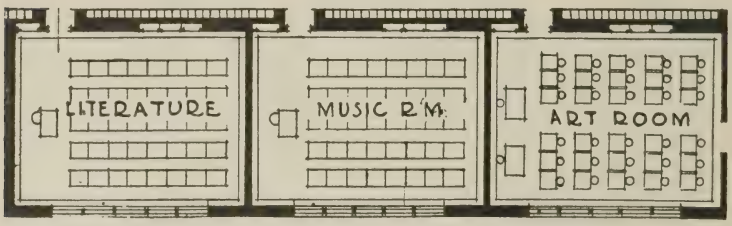

FIG. 68. — Plan of literature, music, and art rooms.

case the conservatory is reached directly from one science room, which has a door leading into the second science room. Each of these rooms has a capacity of forty pupils.

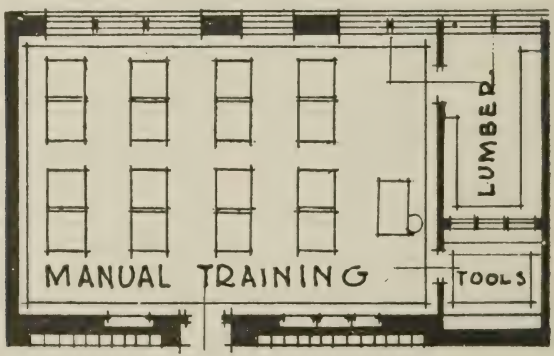

FIG. 69. — Plan of manual training room.

(*h*) *Literature, music, and art rooms.* Rooms used for literature, music, and art are of the standard home room size, 22 by 30 feet, and have either the regular built-in storage cabinets and closets, or, in the case of

the art room, special cabinets and a lavatory. Each room has a capacity of forty pupils.

(*i*) *Manual and industrial arts and home economics.* Provision for these activities includes a manual training room 22 by 30 feet with tool and lumber space in addition and built-in cabinets of a special type. A room of similar size is set aside for domestic science with space for a pantry and a small dining room. The rooms for sewing are of the standard size, 22 by 30 feet, with built-in equipment for this type of work. The capacity of a manual training or domestic science room is twenty-four and of a sewing room forty.

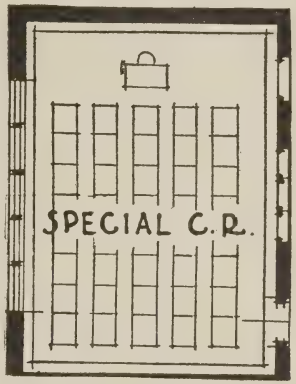

FIG. 70. — Plan of special room.

(*j*) *Special rooms.* In all new buildings provision is made for several special rooms for activities not a part of the regular platoon organization. In this group may be included open window rooms, rooms for defective children, ungraded and opportunity rooms, as well as rooms for Americanization and foreign classes. These rooms are all of standard size, 22 by 30 feet, and have the usual equipment and facilities.

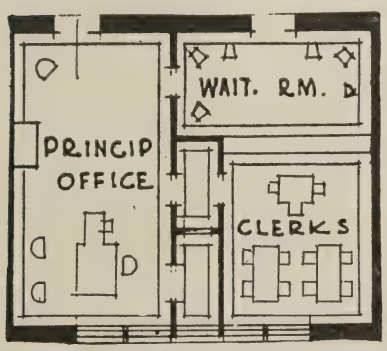

FIG. 71. — Plan of administration rooms.

Auxiliary units. — (*a*) *Administration rooms.* Space equal to the area of one standard classroom is allowed for general administration. This is divided into a large office for the principal, with ample space for a waiting room and a room for the clerk. Wardrobe and toilet facilities are also included.

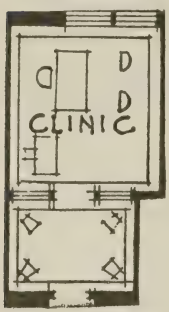

FIG. 72. — Plan of clinic.

(*b*) *Clinics.* Each school includes some space for the physician and nurse. In the Duffield plan an area of about 12 by 22 feet is thus reserved. The outer part, opening into the corridor, is used as a waiting room, and the inner quarters for examinations and treatments.

(*c*) *Lunch rooms.* All new platoon school buildings include space for a lunch room. In the Duffield School plan there is an area 22 by 35 feet for this purpose. About one-fourth of this space is used for the pantry and kitchen, and the remainder for tables and chairs. The kitchen is provided with a special range and a refrigerator with apparatus for making ice. Food is passed through windows from the kitchen to a serving table outside. A rail serves to direct the course of pupils, as they pass the serving table

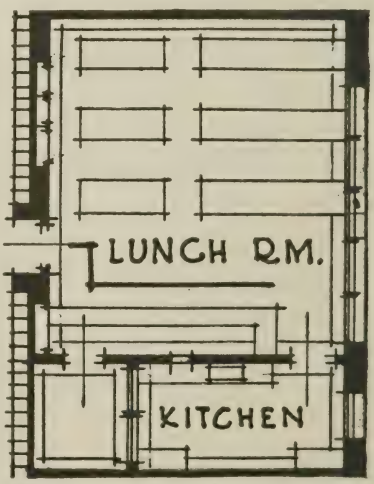

FIG. 73. — Plan of lunch room.

to secure their food. This lunch room is designed to serve a five-cent plate lunch and does not offer facilities or space for more elaborate meals.

(*d*) *Teachers' rest rooms.* All teachers in platoon schools have two half-hour rest periods daily, and special

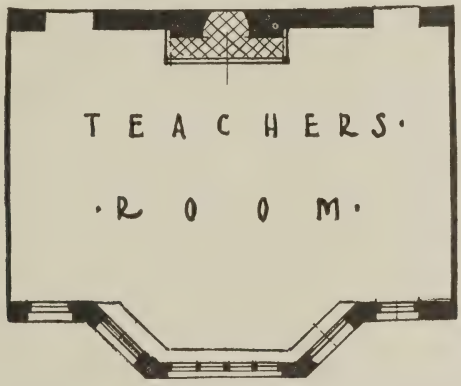

FIG. 74. — Plan of teachers' rest room.

rooms for their comfort and convenience are provided. In the Duffield School a well-lighted room, prominently located in the front of the building, is set aside for teachers.

(*e*) *Corridors with individual lockers.* The requirements of the platoon school make corridor lockers desirable. They are easily accessible at all hours of the day, and occupy space that is otherwise of little value. The new buildings include space in a steel locker for the use of each child in the building, up to its standard capacity.

Fig. 75. — Corridor lockers, each locker used by two pupils.

CHAPTER IV

EDUCATIONAL RESULTS

I. Introduction

Is the platoon school proving its worth? Progress in the field of education, as in every phase of social life, comes through change and readjustment. Old and well-established types of organization and modes of procedure must in the course of time yield to those which are in accord with changed conditions, but innovations in education must invariably prove their worth before they finally receive the hall-mark of general approval.

The platoon school is no exception to this rule. If this new organization is to supplant the traditional grammar school plan, it must first demonstrate that its educational product is superior to that of the time-honored school which it replaces.

All students of education who are attuned to the spirit of the times will concede that the platoon school with its gymnasiums, playrooms, auditoriums, nature study rooms, libraries, and other modern features offers to a child many worthwhile experiences. Nevertheless, in the minds of some there is a feeling that the very presence of so many attractive activities in the curriculum may result in the neglect of those formal aspects of instruction which long have been rated as

fundamental in all education. Parents as well as educators are inclined to ask:

(1) Is the platoon school producing satisfactory results in the three R's?

(2) Does the increased interest which the child displays in the newer subjects result in diminished interest and effort in the fundamentals, or does the emotional stimulus which he receives in the gymnasium, auditorium, and library carry over and result in greater enthusiasm and interest in all of his work?

(3) Are pupils progressing through school in a satisfactory manner?

(4) Is the number of failures in the platoon school less or greater than in the non-platoon school?

(5) Is there more or less retardation than under the old system?

These are legitimate inquiries and must be answered as far as possible in terms of objective data.

Data on the platoon school. Fortunately, scientifically prepared information is available bearing upon all of these questions. At every stage of their development the Detroit platoon schools have been carefully studied and checked. The Department of Educational Research has measured the results in the tool subjects and compared them with those achieved in non-platoon schools. Data are available, derived from scientific studies of this kind continued over a period of nearly five years, and it is now possible to speak with some confidence concerning the success of the platoon schools in training children in the fundamental skills.

II. Technique Used in Measuring Results

Use of standard tests. Platoon schools, in common with the other Detroit elementary schools, give standard tests in spelling, writing, arithmetic, and geography

twice each semester as a routine part of regular school work. The first trial at the beginning of a semester reveals the relation of the children's abilities to the standards for their grades. On this information the work for the semester can be intelligently planned. The second test at the close of the semester shows the degree to which the work done has been effective. The tests are given by the teachers of the various schools. Copies of the individual scores and class tabulations are then sent to the central office of the department, and from these duplicate records tabulations are made of city-wide median scores and of special comparisons. The data submitted below are based upon a special study of the relation between scores made by the platoon schools and those made by the non-platoon schools of the city.

Method of tabulation. In Detroit a simple method of tabulation has been adopted which is uniform for all tests and which yields a point score determined by the number of children who reach or approach the standard. Thus, a class, every child of which is of standard ability, will have a score of 1000 points. A score of 800 points indicates that 80% of the desired development has been achieved. The score of a class in arithmetic, for instance, is not a statement of the median rate and accuracy of work of the class, but a statement which shows how closely the class approximates standard ability. That is, the method first sets up standards as goals for each grade and subject, then measures the teachers' work by determining how nearly she succeeds in developing standard ability in each boy or girl. Whatever the grade or test, perfect success is indicated

by a score of 1000 points. It is thus easily possible to compare achievements in different subjects.

III. Amount of Time Devoted to Fundamentals in Platoon Schools

A comparison. Although the platoon school provides time for a number of activities not found in non-platoon schools, it actually devotes more time to the

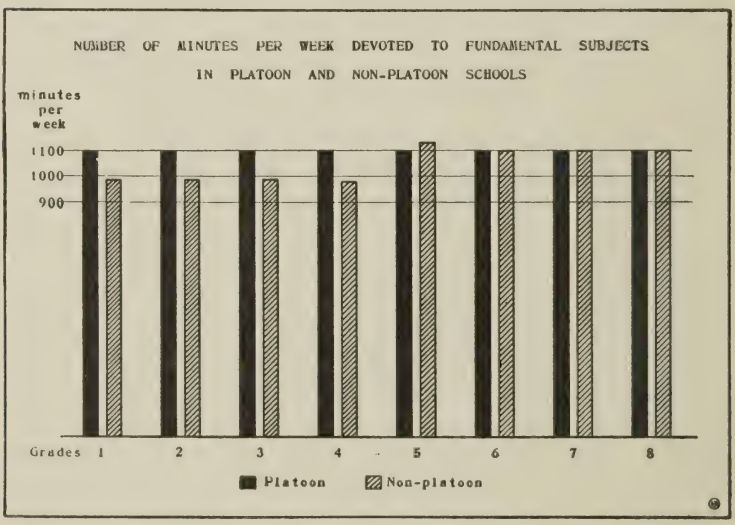

Fig. 76.

fundamentals than the traditional school. This is made possible by the longer school day.

In the primary grades of platoon schools the fundamentals are taught 1100 minutes a week as against 900 minutes in Grades I–III and 980 minutes in Grade IV of the non-platoon schools. In the grammar grades the total time is the same in both types of schools, except

in the fifth grade, in which the non-platoon allotment exceeds by 30 minutes the time allowed in the same grade in platoon schools. These data clearly demonstrate that the child of the platoon school is receiving more hours of instruction in the essentials than he would receive in the traditional school.

IV. Comparative Results in Platoon and Non-Platoon Schools

For the purposes of this comparative study two groups of platoon schools have been selected. One

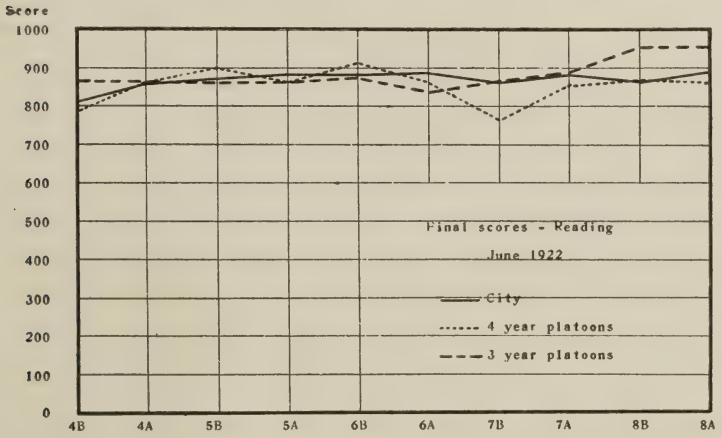

Fig. 77.

group of six schools has been organized on the platoon plan for over four years. The second group of nine schools has been organized on the new plan for more than three years. A comparison of the results produced over a period of several years in these fifteen platoon schools with the results attained during the

same time in the city at large makes it possible to note:

(1) The immediate effect of reorganization upon results in the fundamental subjects.

(2) The results in the fundamentals after the schools have been organized on the platoon plan for several years.

Comparison of median scores, June, 1922. In this study the results in the two groups of platoon schools

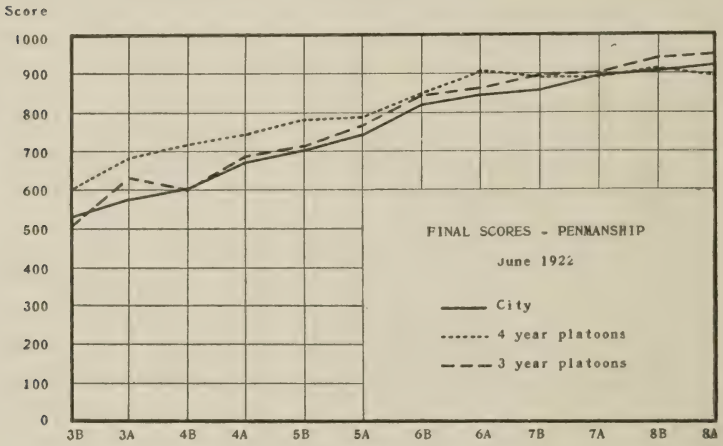

FIG. 78.

are presented separately and compared with the city as a whole for the semester ending in June, 1922.

Reading. In Figure 77, the figures along the base line represent the grades from 4B to 8A and the figures along the perpendicular line show the point scores. The solid line stands for the median for the city in reading, the dotted line for the median for the four-year group, and the broken line for the median for

the three-year group. From these results the conclusion may be drawn that with all the factors operating the two groups of platoon schools are securing approximately the same results in reading as the city at large.

Penmanship. In penmanship the median scores for both groups of platoon schools are somewhat above the city median. The four-year group excels the three-year group in grades below the seventh, while in the

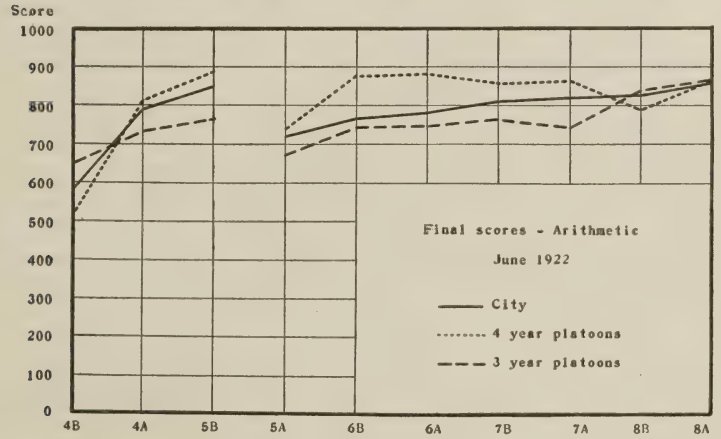

FIG. 79.

seventh and eighth grades it falls slightly below the three-year curve. (Figure 78.)

Arithmetic. The results in arithmetic are not consistent. In the main, the curve for the four-year group runs above the city median while that for the three-year group falls somewhat below. The cause of this deviation from the city median is not known. (Figure 79.)

Spelling. The close correspondence of all of the curves in spelling seems to point to practically equal results in all three groups. (Figure 80.)

Geography. Comparative results in the geography of location for the semester ending in June, 1922, indicate that the curves closely approximate each other. In the tests on states and cities the four-year group show some superiority. (Figure 81.)

Although the gross results for one semester as pictured in these five graphs do not indicate a marked

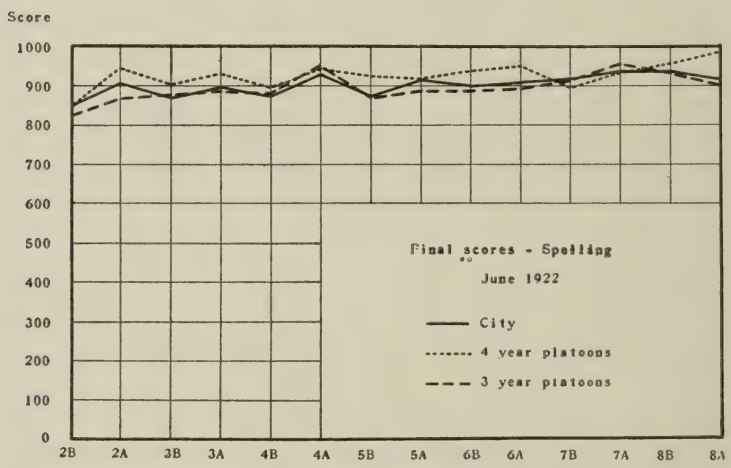

FIG. 80.

superiority of one type of school over the other, nevertheless, the outcome on the whole is favorable to the platoon schools in that the results in the two groups of schools of this type are either equal to or better than the city median.

Comparison of median scores: four-year and three-year groups with city, January, 1920–June, 1923. While the comparative results for one semester are suggestive and show the general trend in the two groups of schools as compared with the city as a whole, a study covering

a period of several years is a much better index of the results produced by the two types of school organization.

Data submitted in this connection are especially significant because they represent a clearly defined tendency in platoon schools. Past experience has shown that for several semesters following the opening of a new building or the establishment of a new organization there has been a tendency toward lower scores,

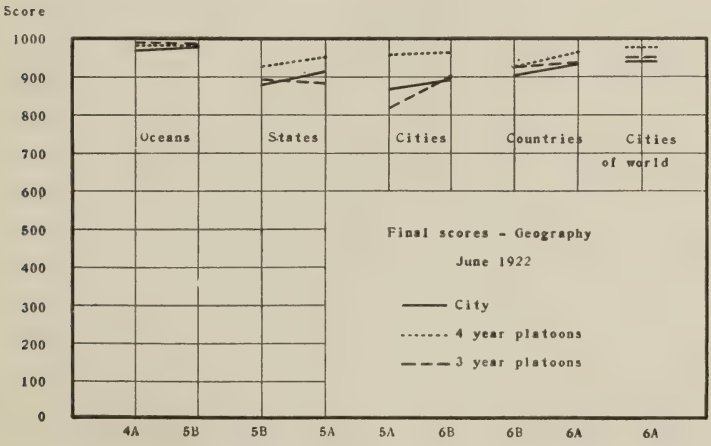

FIG. 81.

and marked variations from grade to grade have been noticeable. While some schools produce as good results immediately after reorganization as they produced before, other schools during the period of readjustment show a loss in efficiency. However, as soon as the new organization begins to function smoothly and pupils and teachers become accustomed to the new order, results begin to improve, and after a reasonable period the point scores in the tool subjects equal or exceed

those attained under the non-platoon organization. This is the outcome that might reasonably be expected.

The graphs immediately following represent a comparative study of the scores in the three-year and four-year groups and in the city at large for a period of eight semesters. The results of this study are arrayed in a series of bar graphs. The method by which these

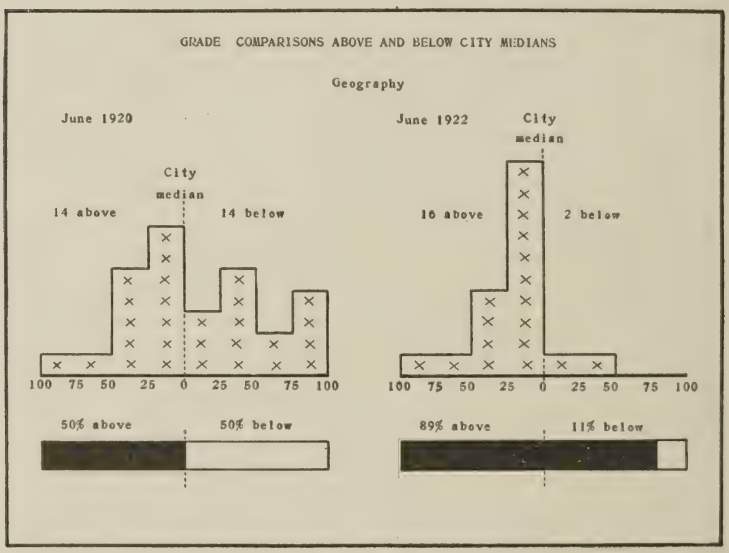

FIG. 82.

graphs are derived from the supporting data may be readily understood by reference to Figure 82.

The surface of frequency on the left in Figure 82 represents the distribution of results in geography in June, 1920. Each cross stands for a grade median derived from a group of platoon school classes in geography. The median for each grade is determined and compared

with the city median in geography for the same grade. The platoon school grade medians are then distributed above and below the median for the city. In Figure 82 the dotted perpendicular line represents the city median and the crosses which stand for the platoon school grade medians are distributed above and below this city median line. In the surface of frequency on the left

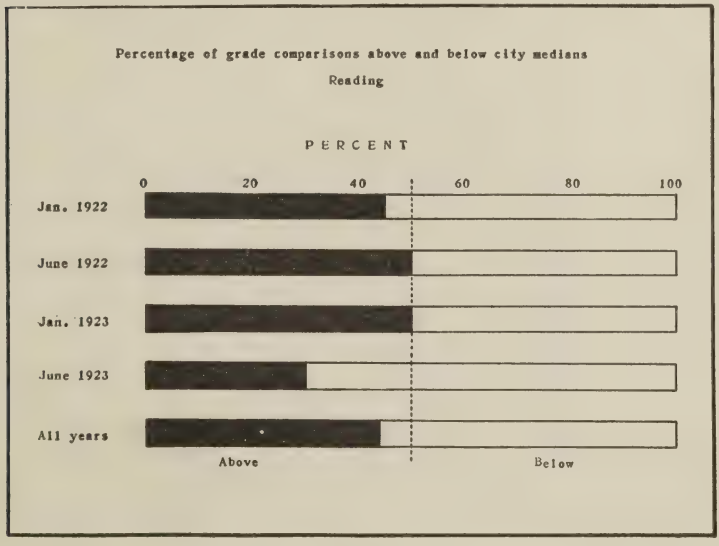

FIG. 83.

there are twenty-eight grade medians involved. Of these fourteen, or 50%, are above the city median and fourteen, or 50%, are below. This is graphically shown in the bar-graph below the surface of frequency. In this and all succeeding bar-graphs the black section of the bar shows the per cent of platoon school grade medians above the city median. The surface of fre-

quency on the right shows the distribution of platoon school geography grade medians in June, 1923. In this case eighteen grade medians are involved and sixteen or 89% are above the city median and two or 11% are below as indicated in the bar-graph.

Reading. Tests in reading were not used regularly in Detroit before September, 1921. Therefore, the data

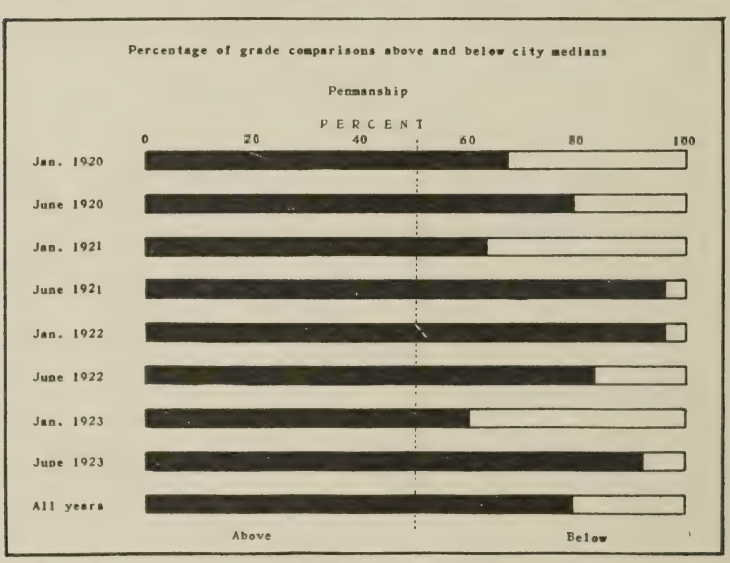

FIG. 84.

shown in Figure 83 include only four semesters. For the semester ending January, 1922, only 45% of the comparisons were favorable to the platoon schools. In June, 1922, and in January, 1923, 50% of the comparisons were above the city median, but in June, 1923, due to the influence of some factor which has not been ascertained the percentage of favorable comparisons fell to 31%.

Penmanship. For every semester from January, 1920, to June, 1923, the number of comparisons in penmanship above the city median has equaled or exceeded 60%. In June, 1921, January, 1922, and June, 1923, over 90% of the platoon school medians in penmanship exceeded the city median. (Figure 84.)

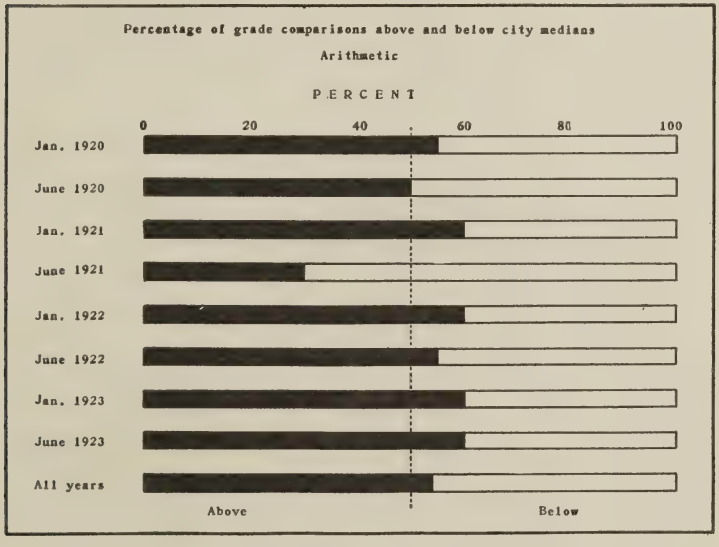

FIG. 85.

Arithmetic. With the exception of one semester, ending in June, 1921, the comparisons in arithmetic have equaled or exceeded the city median. In June, 1921, for some reason not apparent, the results in this group of schools fell off sharply. This is clearly indicated in Figure 85. Generally speaking the platoon schools in this group have, over a period of four years, attained a higher point score than the city at large.

Geography. With the exception of the semester ending January, 1921, the fifteen platoon schools at all times have shown results in geography equal to or better than the city. In four of the five semesters since January, 1921, the platoon group has displayed marked superiority in this subject. (Figure 86.)

Spelling. The percentage of favorable comparisons in spelling has equaled or exceeded the city at

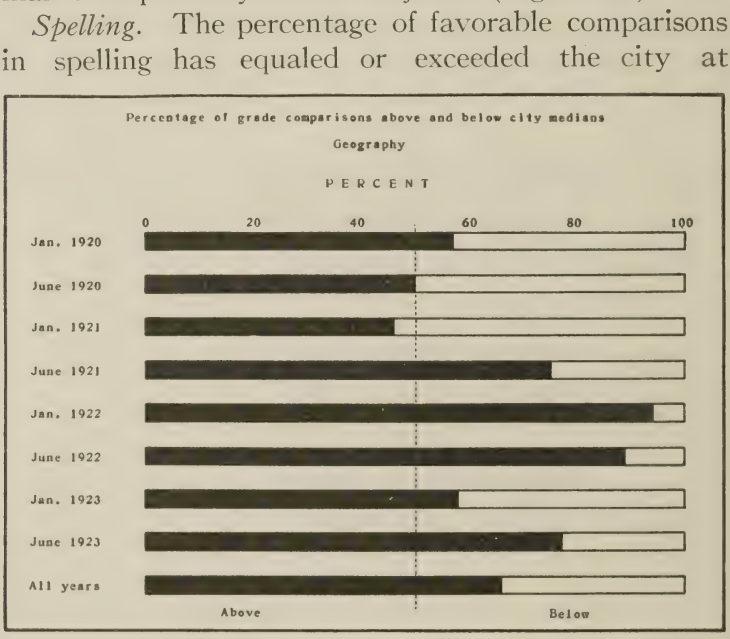

FIG. 86.

large in every semester from January, 1920, to June, 1923. (Figure 87.)

Percentage of grade comparisons above and below city median, by subjects, January, 1920 – June, 1923. The results represented in Figure 88 are obtained by computing the grade medians in each subject for each semester and comparing these medians with the city

medians in the same subjects for the same semesters. The bar-graph indicates the percentage of favorable comparisons in each subject over a period of eight semesters.[1] These consolidated results show that in reading the percentage of grade comparisons is slightly less than 50%; in arithmetic the number of favorable comparisons is 54%; in spelling 56%; in geography 66%; and in penmanship 79%.

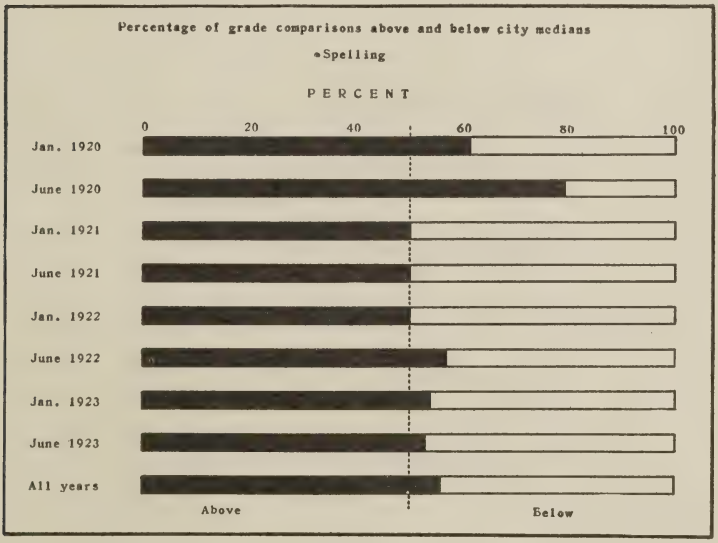

FIG. 87.

Comparison of grade medians above and below city median, all tests — by semesters, January, 1920 – June, 1923. Figure 89 graphically represents results obtained by: (1) computing grade medians in all subjects in platoon schools for a given semester; (2) finding the median of these grade medians; and

[1] Data in reading cover only four semesters.

(3) comparing the median of the grade medians with the city median for all subjects at the end of the same semester.

In the consolidated data derived from all tests the fifteen platoon schools show a marked superiority over the city in every semester from January, 1920, to June, 1923.

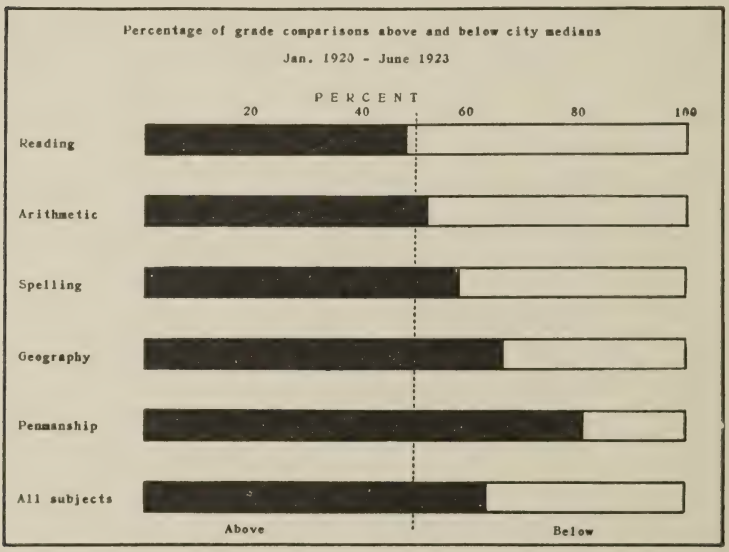

FIG. 88.

The results represented in Figure 89 may be more easily analyzed if arrayed as in Figure 90. In this graph the results obtained by the four-year and three-year groups of platoon schools in all tests for six semesters are shown separately. From this study it is evident that the four-year group have produced superior results in every semester. On the other hand, the three-year group during the three semesters imme-

diately following their organization show less than 50% of favorable comparisons. In the fourth semester the percentage of comparisons above the city median almost reached the 50% line, and in the fifth, sixth, and eighth semesters the percentage of favorable results in this group was well above 50%, although in the semester ending in January, 1923, there was for some reason a

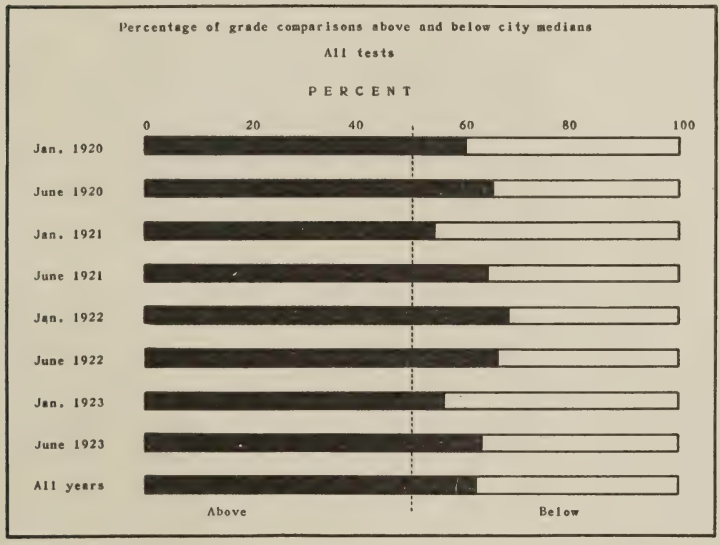

FIG. 89.

decided falling off in the number of favorable comparisons.

This same general tendency stands out even more clearly in Figure 91, in which the percentage of grade comparisons above and below the city median in all tests is shown for the semester ending June, 1922. In this graph the results for a group of one- and two-year

platoon schools are compared with those attained by the three-year and four-year groups. Figure 91 indicates that the one- and two-year schools (a number of which at the date of this study had been organized as platoon schools for less than one year) show only 29% of favorable comparisons; the three-year group, 55% of

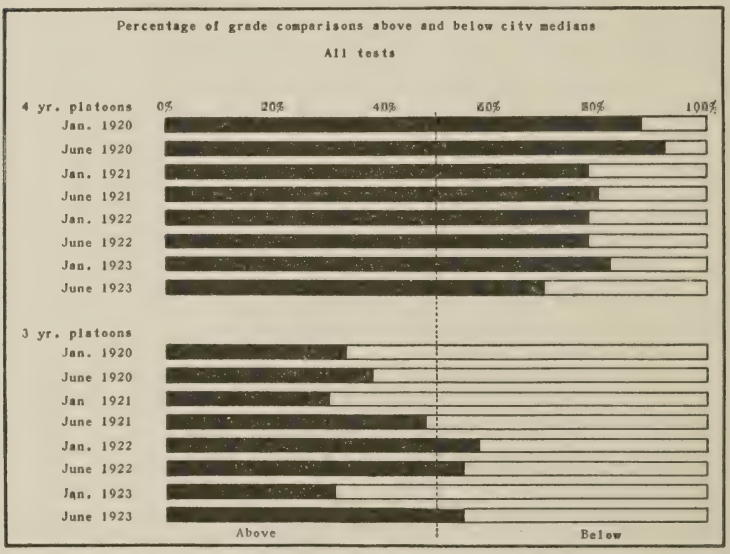

FIG. 90.

the comparisons above the city median; and the four-year group, 78% of the favorable comparisons.

From these studies it seems reasonable to conclude that the platoon school organization, after it has passed through the period of readjustment, may be expected to give more efficient training in the fundamental skills than the non-platoon schools have given.

Comparison of results in schools before and after organization on the platoon plan. For the purposes

of this study two groups of schools were taken. The first group consists of fourteen schools which have been platoon schools for at least two years. This group includes schools which were organized during the year following the organization of the three-year group. The second group embraces ten schools all of which have been operated as platoon schools for three years or

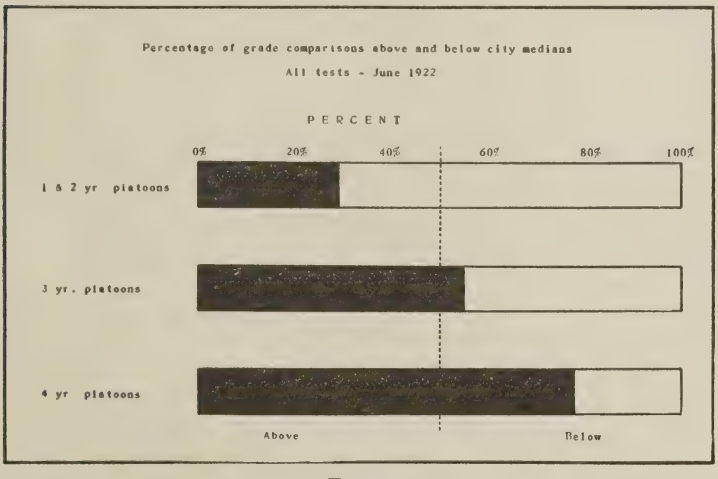

FIG. 91.

more. The ten schools include eight schools from the three-year group and two from the four-year group.

In order to determine how reorganization has affected the results in the fundamentals in these schools, as many class medians as possible were obtained from the test records of each school during the semesters before reorganization. Each class median was compared individually with the city median for the same semester. In a like manner class medians were obtained from these same schools for the entire period

from the date each school became a platoon school up to the date of this study (March, 1923). Each of these class medians was compared individually with the city median for the same semester. It will be noted that in the three-year group the number of class medians after organization is largely in excess of the number before, because data are available for only a short period before

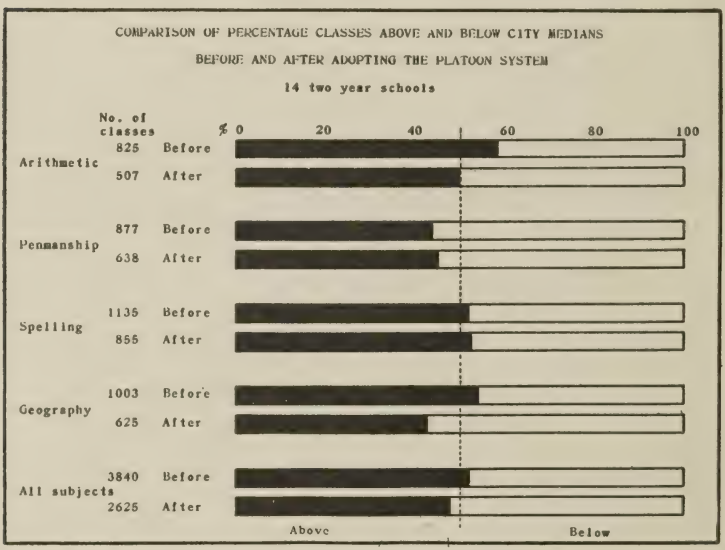

FIG. 92.

reorganization, while complete records have been preserved during the entire period since reorganization.

For the fourteen schools organized as platoon schools for two years or more, the percentage of class medians above and below the city medians during the periods before and after they became platoon schools are represented in Figure 92.

In arithmetic the percentage fell from 58% to 50%

after reorganization; in penmanship it increased from 44% before to 48% after; in spelling it increased from 49% before to 52% after; and in geography the percentage fell from 54% to 43%. The data here submitted confirm the conclusion previously reached that during the early period of reorganization and readjustment the efficiency of instruction may be for a time

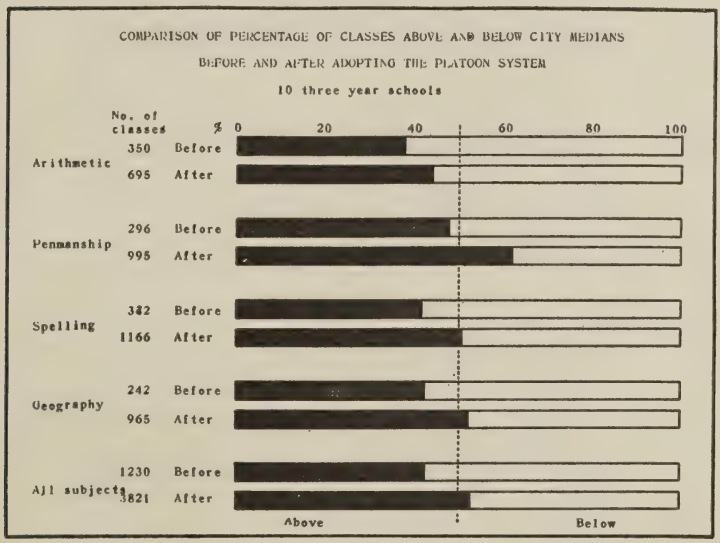

FIG. 93.

slightly reduced. On the other hand Figure 93 tells another story. Here are arrayed the results before and after reorganization in the ten schools which have been organized on the platoon plan for three years. This graph shows that the percentage of favorable comparisons in arithmetic increased from 38% before to 44% after reorganization; in penmanship from 48%

before to 62% after; in spelling from 42% before to 51% after; and in geography from 42% before to 52% after. These results confirm the conclusions previously drawn that after a reasonable period allowed for readjustment, the efficiency of instruction in the platoon schools rapidly increases.

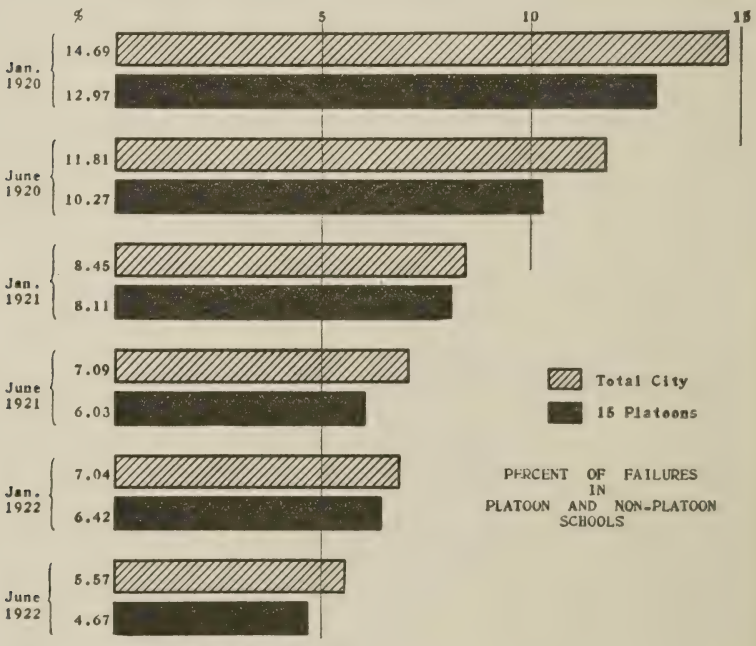

FIG. 94.

School failures, retardation, and acceleration. In evaluating the educational product of a school two significant factors to be considered are the percentage of school failures and amount of retardation and acceleration. Data relating to the progress of pupils through the grades not only are a good index of the

quality of instruction and the adaptability of the curriculum, but also of the functioning of the organization as a whole. Figure 94 indicates the percentage of failures in fifteen platoon schools as compared with the city as a whole. The data covers six semesters from January, 1920, to June, 1922.

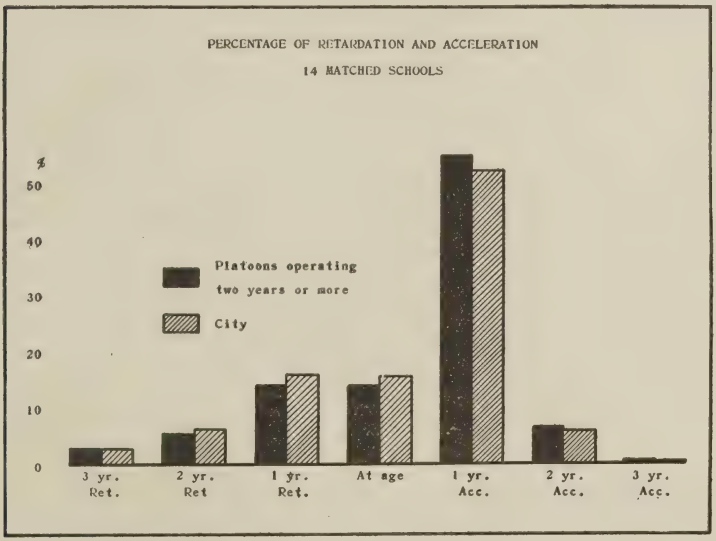

FIG. 95.

The percentage of failures in the elementary schools of Detroit has steadily decreased since January, 1920. This decrease probably has been due to improvements in the quality of instruction and in the curriculum, as well as to administrative adjustments. The percentage of failures in the fifteen platoon schools during the entire period has been less than that in the city at large. In this connection, it is fair to consider that the fifteen platoon schools during the six semesters from January,

1920, to June, 1922, had a smaller percentage of failures than the other schools in spite of the fact that the platoon schools were in process of reorganization and readjustment.

Figure 95 shows the percentage of retardation and acceleration in fourteen of the fifteen platoon schools, and fourteen comparable non-platoon schools.

The percentage of three-year retardation is equal in the two groups. The percentage retarded two years and one year, as well as the percentage in grade at age, is slightly larger in the non-platoon schools. The percentage of one-year and two-year acceleration is somewhat larger in the platoon group. From these data it may be concluded that as far as retardation and acceleration are concerned the platoon schools have a slight advantage.

In interpreting the data submitted above bearing on results in the fundamentals as well as upon the percentages of failures, retardation, and acceleration, it must be kept in mind that progress in school is influenced by a variety of factors aside from the school organization itself. For this reason it is not possible to say that the results attained in platoon schools are better than those produced in the non-platoon schools entirely because of the difference in organization. What the results really show is that over a period of from three to four years the two groups of platoon schools have attained better results in the fundamentals than the city as a whole, and also have had a smaller percentage of failures and less retardation than the non-platoon schools of the city during the same period.

In considering the above results it is pertinent to

inquire whether the fifteen platoon schools may not in the beginning have been a favored group either as respects the nationality of the children, or the quality of the instruction which the children have received. Experience has shown that the nationality of the pupils and the quality of the teaching are two factors which have an important bearing on school progress. Data

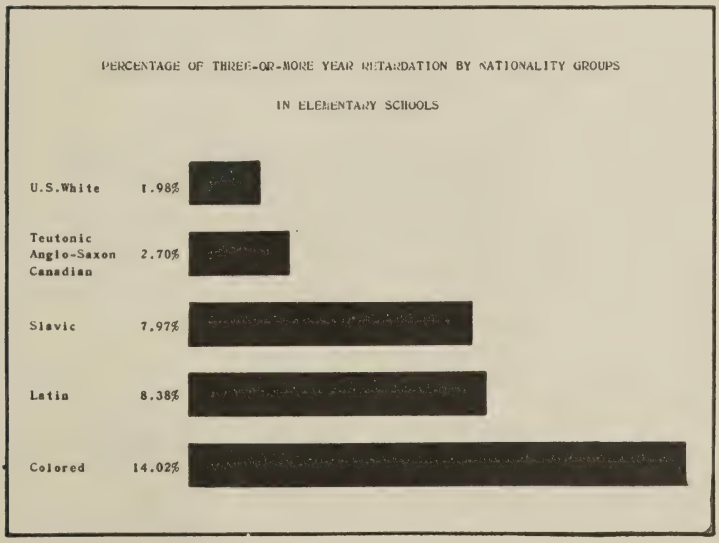

FIG. 96.

are therefore included below for the purpose of comparing the platoon schools with the city at large on the basis of these two factors.

Figure 96 shows the distribution of three-year retardation in the elementary schools of Detroit among the various nationality groups.

Of all three-year retardation 1.98% is among U. S. whites; 2.7% among the Teutonic, Anglo-Saxon, and

Canadian groups; 7.97% among the Slavic group; 8.38% among the Latin group; and 14.02% among the colored group.

Figure 97 shows the distribution of nationalities among platoon and non-platoon schools. It is evident that the number of U. S. whites is approximately the same in the two groups; that the platoon schools have

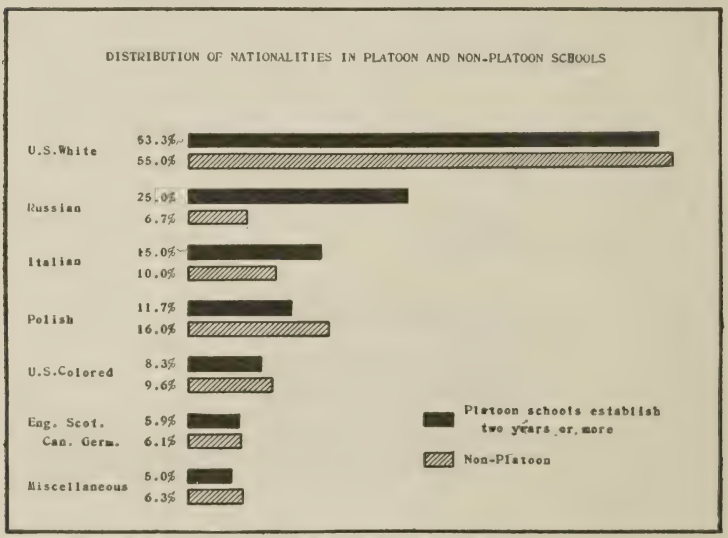

FIG. 97.

three times as many Russians as the non-platoon schools; that the platoon schools have one third more Italians than the non-platoon schools; that the non-platoon schools have 4.3% more Polish than the platoon schools; and that the percentage of colored and other groups is about the same in the two types of schools. This study does not prove that the platoon schools are

favored as respects the nationalities of the children enrolled in them.

A fair gauge of the quality of instruction in platoon and non-platoon schools may be found in the teachers' ratings filed annually by elementary school principals in the office of the superintendent of schools. A distribution of these ratings seems to show that as far as

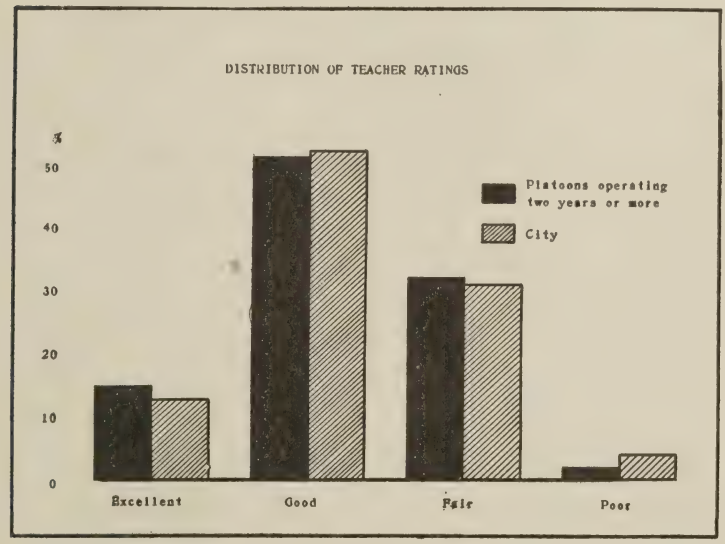

FIG. 98.

the quality of instruction is concerned the platoon and non-platoon schools are almost equal (Figure 98).

The above array of objective data strongly indicates that while the results in the platoon schools over a period of years are superior to those in the city as a whole, this is not the fact because the platoon schools enroll favored groups of children or because the pupils

in platoon schools are instructed by an exceptionally efficient group of teachers. It is also worthy of note that the results shown by these objective data are confirmed by subjective data in the form of the opinions of principals and teachers who work in platoon schools.

CHAPTER V

COSTS

I. Introduction

The second important factor. The supreme test of the value and efficiency of any school organization is its educational product. After this requirement is satisfied there still remains the important factor of cost. The American people believe in education and are proud of the public schools. They are ready to make any reasonable sacrifice to the end that their children may secure the advantages which modern well-equipped schools can offer. Nevertheless, the educator is continually faced with the responsibility of keeping the schools abreast of the times without permitting the educational budget to become excessively high.

The platoon school as organized in Detroit aims to provide for the children and the community all the advantages and facilities which a modern school demands and at the same time to keep the cost of school buildings and the cost of instruction within reasonable limits.

In the data submitted in this section the platoon school and non-platoon school organizations are compared with respect to:

(1) Building costs
(2) Instructional costs

II. Building Costs

Introduction. Preliminary to an intelligent discussion of school building costs, it is necessary to define the meaning of "school building" in terms of twentieth century education. If we are satisfied with a structure of the Quincy Grammar School type consisting merely of rooms of uniform size and equipment without provision for the newer phases of educational activity, the total cost will be relatively smaller and the facilities will be correspondingly inadequate and unsuited to present day requirements.[1]

On the other hand if the term "school building" connotes a structure in which every phase of instruction is provided with special rooms and equipment so planned as to offer the most favorable environment for effective teaching, then the original total cost of the building will be greater.

Society in an increasing degree is demanding school buildings which not only provide for the health, training, and socialization of the children, but for the needs of the community as well. A building with an auditorium, gymnasium, and play space is a necessary prerequisite to the Detroit plan of platoon organization, but it is fair to assume that with the awakening of community interest in the schools and the growth of parent-teacher associations, the public will insist upon modern, completely equipped buildings even if the non-platoon plan is continued.

[1] The unit cost, *i.e.*, on the square foot or cubic foot basis, would be approximately the same.

Effect of an addition of auditorium, gymnasium, and playroom. A large part of the reorganization of the Detroit elementary school system has been accomplished by adding auditoriums, gymnasiums, and playrooms to buildings already in existence. How such an addition affects the capacity of a twelve-room building is indicated in Figure 99.

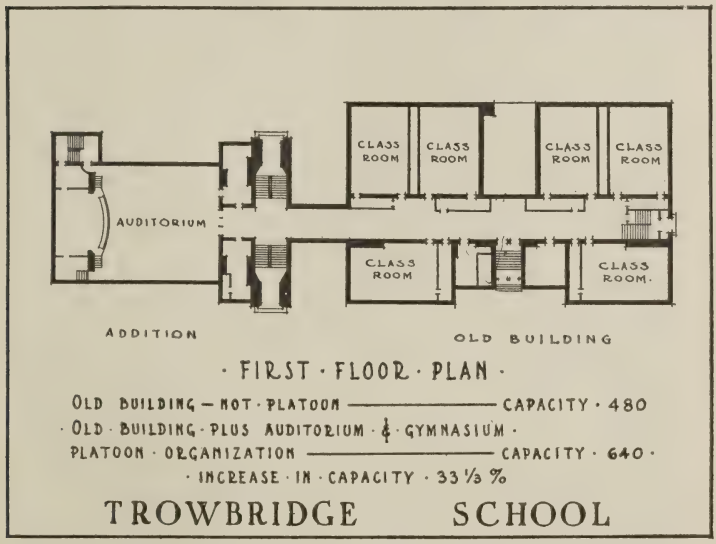

FIG. 99.

The Trowbridge School, an old twelve-room building, provided a maximum of 480 seats on the non-platoon plan. A gymnasium was added on the basement level with an auditorium above it on the first floor level. A room in the basement of the old building was then utilized for indoor play. The installation of the platoon organization in this enlarged building increased the number of seats from 480 to 640, or $33\frac{1}{3}\%$.

For a comparative study of the capacities of seventy-seven Detroit elementary school buildings under the platoon and non-platoon plans see Appendix, page 254.

Comparative cost of auditoriums, gymnasiums, and playrooms with equivalent space in classrooms. If the increase in capacity under the platoon plan arises from the addition of auditoriums, gymnasiums, and

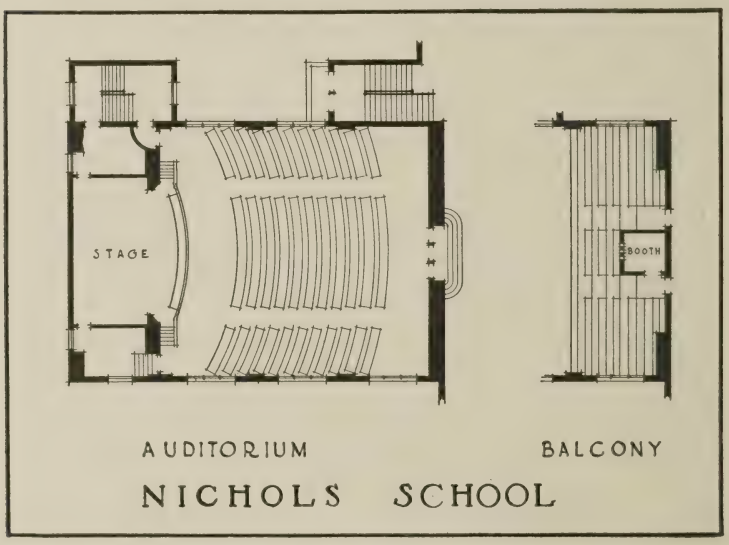

FIG. 100.

play space it becomes a matter of interest to know how the cost of such additions compares with the cost of an equivalent housing capacity in ordinary schoolrooms. The increase in capacity due to the auditorium and health units varies with the size of the building. This is apparent from Table XI.

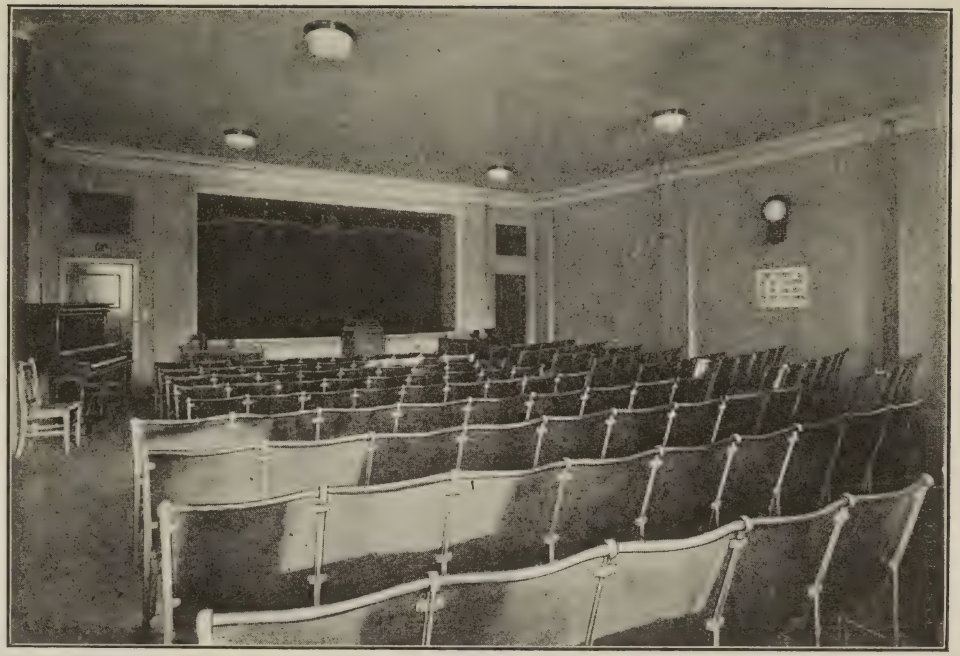

FIG. 101. — Doty School Auditorium.

TABLE XI — Increase in Capacity Due to Addition of Auditorium and Gymnasium

12 Rooms	Capacity 480 + Aud. & Gym.	=	16 Rooms	Capacity 640
15 Rooms	Capacity 600 + Aud. & Gym.	=	20 Rooms	Capacity 800
18 Rooms	Capacity 720 + Aud. & Gym.	=	24 Rooms	Capacity 960

A second important factor to be considered is the size of auditorium to be constructed. In Detroit two types have been erected. The large type is exemplified in the floor plans of the Nichols School auditorium, Figure 100. This auditorium has a ceiling height of two stories and, including the balcony, has a seating capacity of 350.

The small auditorium of the Doty School has a ceiling height of one story and a floor area of less than two ordinary classrooms. It has a capacity of 159 pupils (Figure 101).

It is evident that it is not economical to add a large auditorium to a small building, because it provides capacity far in excess of the needs for daily auditorium classes. However, it does serve the purpose of a community meeting place. In additions to buildings of twelve, sixteen, or even eighteen rooms the smaller type of auditorium with a maximum capacity of 200 to 250 is desirable both on the grounds of economy and because it is adequate for the needs of the school.

It is difficult to make an accurate comparative study of the costs of school additions. Each case is a problem in itself owing to a variety of factors, the principal one being the cost of altering and enlarging the heating and ventilating plants

Table XII, which shows the costs of various additions to elementary schools, both with and without auditoriums, indicates that in these particular cases the cost

of auditoriums and health units varies only slightly from the cost of equivalent space in the form of classrooms.

TABLE XII — Comparative Costs of Auditorium and Gymnasium with Equivalent Space

Date	School	Addition	Cost	Incr. Cap.
Aug. 1920	Carstens	8 Class Rms.	$191.726	8 rooms
Aug. 1920	Crosman	Aud. Gym. & 2 Class rms.	$198.251	8 rooms
April 1921	Estabrook	Aud. & Gym.	$125.817	6 rooms
June 1921	Doty	Aud. Gym. & 4 Class rms.	$134.000	10 rooms
Aug. 1921	A. L. Holmes	Aud. Gym. & 8 Class rms.	$123.000	14 rooms
Aug. 1921	Wingert	Aud. Gym. & 7 Class rms.	$140.000	13 rooms
Sept. 1921	Maybee	8 Class rms.	$109.000	8 rooms
Dec. 1921	Stephens	8 Class rms.	$116.000	8 rooms

Comparative cost per pupil of new buildings organized on the platoon and non-platoon plans. If the introduction of the platoon plan increases capacity it is evident that the per capita cost of the building will be less than under the non-platoon plan. Table XIII shows the comparative per capita costs of a group of Detroit's new elementary school buildings.

III. Instructional Costs

Introduction. Before any definite conclusion can be reached as to the relative costs of instruction in platoon and non-platoon schools it will be necessary to determine what particular type of non-platoon school is to be used in the comparison. If the school is of the traditional " single teacher " type in which a pupil receives all his instruction from one teacher, it may be conceded in advance that the cost will be less than in a platoon school because the service rendered will be less.

TABLE XIII — COMPARATIVE COSTS PER PUPIL OF BUILDINGS ORGANIZED ON PLATOON AND NON-PLATOON BASIS

SCHOOL	CAPACITY OF BUILDINGS					COSTS		
	Kdgn.	Non-Platoon Capacity		Platoon Capacity		Total Cost of Building	Cost Per Pupil	
		Above Kdgn.	*Total*	*Above Kdgn.*	*Total*		*Non-Platoon*	*Platoon*
Balch	120	720	840	1,000	1,120	$656,712	$781.80	$586.35
Cooper	120	1,360	1,480	1,840	1,960	406,543	274.69	207.42
Custer	120	560	680	800	920	442,699	651.02	481.19
Duffield	120	1,760	1,880	2,240	2,360	760,791	404.68	322.33
Ferry	120	920	1,040	1,160	1,280	423,406	407.12	330.70
Keating	120	1,000	1,120	1,280	1,400	256,005	228.58	182.86
Pattengill	120	1,360	1,480	1,840	1,960	762,038	514.89	398.79
Poe	120	880	1,000	1,120	1,240	312,408	312.40	251.93
White	120	520	640	720	840	456,546	713.35	543.51

If, however, the cost of instruction in a platoon school is to be compared with similar costs in a semi-departmentalized school of the non-platoon type the situation then calls for careful analysis before the comparative costs can be determined.

Duplication of teacher service and waste of instructional space. As a result of the expansion of the

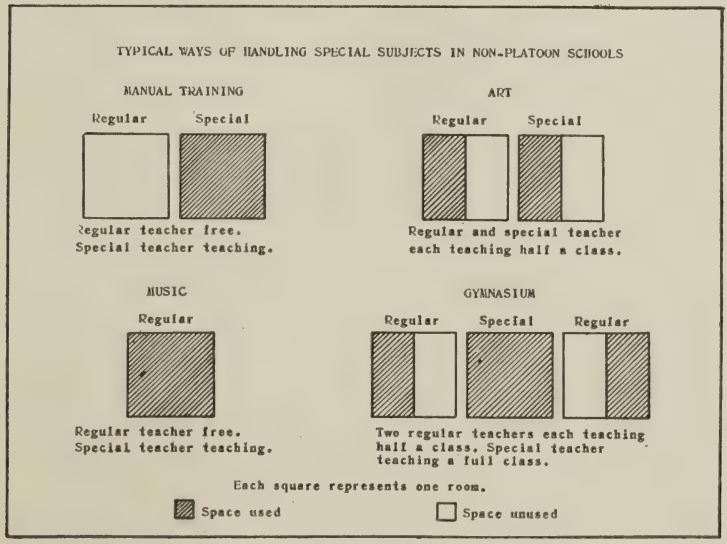

FIG. 102.

elementary school curriculum, progressive school systems are now employing special teachers of music, art, and health education who teach in schools of the non-platoon type. The service which they render increases the efficiency of the instruction and also adds materially to the cost because they duplicate the service of other teachers. The manner in which this duplication takes place may be shown as in Figure 102. Four typi-

cal methods of using special teachers in non-platoon schools are here portrayed:

(*a*) *Manual Training.* The regular teacher is entirely free while the special teacher conducts the class in a special room.

Two teachers are being employed for one group of pupils and the regular room remains vacant.

(*b*) *Art.* The regular teacher retains half the class while the other half is instructed in a special room by a special teacher. The number of pupil hours of instruction is decreased by one-half and half of each room is vacant.

(*c*) *Music.* The regular teacher is entirely free while the special teacher works in the regular room. Two teachers are employed for the same group at the same time.

(*d*) *Gymnasium.* Two regular teachers each teach half a class in a regular room and the special teacher instructs a whole class in the gymnasium. Three teachers are employed to teach two classes and space equivalent to an entire room is left vacant.

Any type of organization that is wasteful of teacher service or of instructional space is inefficient. Nearly all non-platoon schools are to a degree inefficient in one or both of these respects.

Required number of teachers in platoon and non-platoon schools of equivalent size. This tabulation is based upon the median number of teachers employed in Detroit in non-platoon schools of various sizes as compared with the standard allotment of teachers required for platoon schools of the same size. For example a non-platoon school of twelve classes has twelve regular teachers. In Detroit a median number of two special teachers is employed for twelve-room non-platoon schools making a total of fourteen teachers necessary for a twelve-room school. The standard number of teachers required for a twelve section platoon school, Grades I–V, is thirteen and this permits of the entire

range of activities including gymnasium, auditorium, and play as well as special work in art, music, literature, and science.

TABLE XIV — Required Teacher Service

Non-Platoon Schools				Platoon Schools	
No. of Classes	Regular Teachers	Special Teachers	Total	No. of Classes	Total Teachers
11	11	2.4	13.4		
12	12	2.0	14.0	12	13.0
13	13	2.7	15.7		
14	14	3.0	17.0		
15	15	2.8	17.8		
16	16	2.0	18.0	16	18.0
20	20	3.3	23.3	20	22.5
24	24	6.1	30.12	24	29.4

In a school of sixteen classes the platoon and non-platoon teacher requirements are the same, while in the twenty and twenty-four section schools the platoon school renders its more varied service with less teachers. This gives no consideration to the fact that in the non-platoon schools special teachers are freeing both special and regular teachers while both are being paid for the same service. This will appear in the following studies.

Analysis of required teacher service in non-platoon and platoon schools. — *Sixteen section school.* In accordance with the official time allotment for non-platoon schools it is necessary to provide 25,020 minutes of instruction per week. This is apportioned as follows: music 960 minutes; art 960; gymnasium 2,400; manual arts 840; and regular classroom work 19,860. A full-time teacher works 1,500 minutes a week. This would require the employment of .64 of the time of a music teacher; .64 of the time of an art teacher; the time of 1.6 gymnasium teachers; and the

time of 13.24 regular classroom teachers. What we actually employ is 1 music teacher, 1 art teacher, 1.6 gymnasium teacher, .56 manual arts teacher, and 16 regular classroom teachers. In other words to do the work of 16.68 teachers in a sixteen room school it is

TABLE XV — NON-PLATOON SCHOOL — 16 SECTION — GRADES 1 TO 6

SUBJECT	MIN. PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	960	.64	1.00	.36
Art	960	.64	1.00	.36
Gymn.	2400	1.60	1.60	
Man. Arts . .	840	.56	.56	
Reg. Cl. Room .	19860	13.24	16.00	2.76
Total	25020	16.68	20.16	3.48

necessary to employ 20.16 teachers when the non-platoon organization is used. This leaves an excess of 3.48 teachers. This excess is due largely to the fact that special teachers and regular teachers are being employed to instruct the same group of pupils at one time.

TABLE XVI — PLATOON SCHOOL — 16 SECTION — GRADES 1 TO 6

SUBJECT	MIN. PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	960	.64	1.00	+ .36
Art	1060	.72	1.00	+ .28
Gymn.	4500	3.00	2.00	− 1.00
Man. Arts. . .	720	.48	.48	
Audit.	2280	1.52	2.00	+ .48
Literature . . .	2400	1.60	1.50	− .10
Science	2400	1.60	1.50	− .10
Supv. Study . .	420	.28		− .28
Home Room . .	12000	8.00	8.00	
Relief	2400	1.60	1.00	− .60
Total	29160	19.44	18.48	− .96

By way of comparison the sixteen section platoon school offers significant data. The official time allot-

ment for platoon schools provides in a sixteen section school for 29,160 minutes of instruction a week distributed as indicated in Table XVI. As each teacher works 1,500 minutes a week it would require 19.44 teachers to render the required service. The number of teachers actually employed is 18.48, which leaves a shortage of the services of .96 of a teacher. This is explained by the fact that auditorium and gymnasium teachers at times instruct two classes at one time.

From these data it is clear that while the sixteen room non-platoon school requires 20.16 teachers to give 25,020 minutes of instruction, the sixteen section platoon school gives 29,160 minutes of instruction by the use of 18.48 teachers.

TABLE XVII — PLATOON SCHOOL — 18 SECTION — GRADES 1 TO 6

SUBJECT	MIN. PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	1080	.72	1.00	+ .28
Art	1260	.84	1.00	+ .16
Gymn.	4920	3.28	2.00	− 1.28
Man. Arts . . .	900	.60	.60	
Audit.	2550	1.70	2.00	+ .30
Literature . . .	2700	1.80	2.00	+ .20
Science	2700	1.80	2.00	+ .20
Supv. Study . .	540	.36		− .36
Home Room . .	13500	9.00	9.00	
Relief	2700	1.80	1.00	− .80
Total	32850	21.90	20.60	− 1.30

Eighteen section school. An analysis along similar lines of eighteen class or section schools of the two types reveals similar conditions. The eighteen class non-platoon school requires 22.52 teachers to give 28,290 minutes of instruction, while the eighteen section platoon school provides 32,850 minutes of instruction by the use of 20.6 teachers. This discrepancy is largely

due to the fact that the non-platoon organization employs 18 classroom teachers to give instruction which actually requires but 14.9 teachers. This waste of teacher service is due to the employment of special teachers who work while regular teachers are either idle or carry an underload of pupils in their classrooms.

TABLE XVIII — NON-PLATOON SCHOOL — 18 SECTION
GRADES 1 TO 6

SUBJECT	MIN. PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	1080	.72	1.00	.28
Art	1080	.72	1.00	.28
Gymn.	2700	1.80	1.80	
Man. Arts . . .	1080	.72	.72	
Reg. Cl. Room .	22350	14.90	18.00	3.10
Total	28290	18.86	22.52	3.66

Twenty section school. The twenty class non-platoon school shows an excess of 3.64 teachers over the necessary requirements (Table XX). The twenty section platoon as compared with the non-platoon school of the same size makes a favorable showing inasmuch as it gives 37,440 minutes of instruction by em-

TABLE XIX — PLATOON SCHOOL — 20 SECTION — GRADES 1 TO 8

SUBJECT	MIN. PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	1200	.80	1.00	+ .20
Art	1320	.88	1.00	+ .12
Gymn.	4470	2.98	2.00	− .98
Man. Arts . . .	2880	1.92	2.00	+ .08
Audit.	2520	1.68	2.00	+ .32
Literature . . .	3000	2.00	2.00	
Science	3000	2.00	2.00	
Library . . .	1050	.70	1.00	+ .30
Home Room . .	15000	10.00	10.00	
Relief	3000	2.00	1.50	− .50
Total	37440	24.96	24.50	− .46

ploying 24.5 teachers while the non-platoon school requires 25.28 teachers to give 32,460 minutes of instruction.

TABLE XX — NON-PLATOON SCHOOL — 20 SECTION — GRADES 1 TO 8

SUBJECT	MIN. PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	1200	.80	1.00	.20
Art	1200	.80	1.00	.20
Gymn.	3000	2.00	2.00	
Man. Arts	1920	1.28	1.28	
Reg. Cl. Room	25140	16.76	20.00	3.24
Total	32460	21.64	25.28	3.64

Twenty-four section school. The twenty-four class non-platoon school is less efficient than the other types in that it requires an excess of 4.16 teachers. The twenty-four section platoon school is a well-balanced organization and on the whole the most effective. The amount of teacher service employed approximates closely the amount required, and few teachers have an underload in their special departments. This

TABLE XXI — PLATOON SCHOOL — 24 CLASSES — GRADES 1 TO 6

REQUIRED TEACHER SERVICE

SUBJECT	MINUTES PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED
Music	1440	.96	1
Art	1680	1.12	1
Health	6000	4.	3
Manual Arts	1440	.96	1
Auditorium	3360	2.24	2
Literature	3600	2.40	2.5
Science	3600	2.40	2.5
Library	1200	.80	1
Home Room	18000	12.	12
Relief	3600	2.4	2.4
Totals	43920	29.28	28.4

Platoon classes receive 1800 minutes of instruction a week

TABLE XXII — NON-PLATOON SCHOOL — 24 CLASSES — GRADES 1 TO 6

REQUIRED TEACHER SERVICE

SUBJECT	MINUTES PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXCESS TEACHERS
Music	1440	.96	1	.04
Art	1440	.96	1	.04
Health	3600	2.40	2.40	
Man. Arts	1680	1.12	1.12	
Regular Classes	29880	19.92	24	4.08
Total	38040	25.36	29.52	4.16

Non-platoon classes 1500 minutes a week (Grades I–IV).
Non-platoon classes 1650 minutes a week (Grades V–VI).

enables each teacher to devote herself largely to her own special field without being obliged to assist in some other department. This is in accord with the spirit and purposes of the platoon organization.

TABLE XXIII — NON-PLATOON SCHOOL — 12 SECTION — GRADES 1 TO 3

SUBJECT	MINUTES PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	720	.48	.50	.02
Art	720	.48	.50	.02
Gymn.	1800	1.20	1.20	
Man. Arts				
Reg. Cl. Room	14760	9.84	12.00	2.16
Total	18000	12.00	14.20	+ 2.20

TABLE XXIV — PLATOON SCHOOL — 12 SECTION — GRADES 1 TO 3

SUBJECT	MINUTES PER WEEK	TEACHERS REQUIRED	TEACHERS EMPLOYED	EXTRA TEACHERS
Music	720	.48	.50	+ .02
Art	720	.48	.50	+ .02
Gymn.	3600	2.40	2.00	− .40
Man. Arts				
Audit.	1800	1.20	1.00	− .20
Literature	1800	1.20	1.00	− .20
Science	1800	1.20	1.00	− .20
Supv. Study	360	.24		− .24
Home Room	10800	7.20	6.00	− 1.20
Total	21600	14.40	12.00	− 2.40

Twelve section school. In small buildings and in cases where a twelve room unit of a new building is erected it has been found desirable to organize a twelve section platoon school. Such schools usually enroll grades from I to III or I to VI.

In Tables XXIII and XXIV the twelve class non-platoon school and the twelve section platoon school are compared. In this small non-platoon school the excess of teacher service over requirements is just as apparent as in the larger units. The twelve section platoon school shows an underload of 2.4 teachers. This cannot be accounted for as in the larger schools by the use of the service of teachers who have an underload or by double work on the part of auditorium and gymnasium teachers. It can only be offset by reducing the length of the school day from six hours to five hours.

This organization has proved satisfactory especially when the range of grades is small. If it includes Grades I–VIII, the range of the work of some teachers is greater than is ordinarily desirable.

The comparisons in the preceding tables are based upon an *exact* observance of the time allotment in non-platoon schools. This is seldom done. These comparisons also assume that special teachers of health, music, and art are employed to do all of the work in these subjects in non-platoon schools. This is not always the case. In consequence of these deviations the number of teachers required in the non-platoon schools under standard conditions varies somewhat from the number actually employed, as is indicated in Table XXV.

TABLE XXV — Non-Platoon Schools

Median Number of Teachers Actually Employed		Number Required under Standard Conditions	
No. Classes	Total Teachers	No. Classes	Total Teachers
12	14	12	14.20
16	18	16	20.16
20	23.30	20	25.28
24	30.12	24	29.52

The data presented in Table XXVI are the results of a study of the effect of the introduction of the platoon organization into fifteen Detroit non-platoon schools. This study reveals clearly how the two types of organization utilize the available space and how the change to

TABLE XXVI — Plan of Reorganization of 15 Non-Platoon Schools Showing Effect on Available Space and Required Teacher Service

School	Enrollment	Grades	Number Rooms Required		No. Rooms Released	Capacity	Number Teachers Required		Decrease
			As Non-Platoon	As Platoon			As Non-Platoon	As Platoon	
Amos . .	665	1–6	15	13	2	80	19.	18.6	.4
Maybury .	502	1–6	15	13	2	80	15.6	14.6	1.
Smith . .	542	1–6	12	10	2	80	14.3	13.2	1.1
Van Dyke .	525	1–8	12	11	1	40	14.6	14.6	.0
Jones . .	535	1–6	13	11	2	80	15.6	14.6	1.
Sill . . .	474	1–6	12	10	2	80	14.	13.4	.6
Rose . .	537	1–8	13	11	2	80	15.6	14.8	.8
Lynch . .	588	1–8	15	12	3	120	16.2	15.6	.6
Bennett .	589	1–8	13	12	1	40	16.6	14.6	2.
Harms . .	686	1–8	17	13	4	160	19.9	18.8	1.1
Palmer . .	709	1–8	15	13	2	80	20.4	18.6	1.8
Howe . .	757	1–8	15	14	1	40	21.	20.	1.
Monteith .	528	1–8	11	11	0	0	15.1	13.8	1.3
Scripps . .	512	1–8	13	11	2	80	16.6	14.8	1.8
Fairbanks .	829	1–6	22	18	4	160	24.2	22.8	1.4

Number of rooms released, 30.
Total capacity of rooms released, 1200.
Number of teachers released, 15.9.

the platoon school affects the required teacher service. A careful scrutiny of this table shows that the introduction of the platoon organization in these fifteen schools provides for the instruction of the same number of pupils as the non-platoon organization and at the same time releases a total of thirty rooms to be used to increase capacity. A further examination of the results indicates that if the platoon organization is introduced into these schools, the same number of pupils can be instructed by the use of 15.9 fewer teachers. In other words, this study clearly proves that the same number of pupils who are now taught in these fifteen schools under the non-platoon organization can, by the introduction of the platoon plan, receive more instruction by the use of thirty less rooms and 15.9 less teachers. The thirty rooms with a capacity of forty each, may be used to house 1,200 more pupils. The decrease of 15.9 teachers at the median elementary salary of $1,800 would mean an annual saving in the fifteen schools of $28,620. In platoon schools, however, auditorium teachers and heads of gymnasiums receive salaries of $200 per year in addition to the regular schedule. In the fifteen schools involved, thirty-four teachers therefore would receive an increase of $200 a year or a total of $6,800. If this amount be deducted from the $28,620, saving due to release of 15.9 teachers, the net annual saving in salary as a result of introducing the platoon organization into these fifteen schools would be $21,820. Thus good salaries can be apportioned highly trained special teachers, and the platoon system still prove more economical than the non-platoon.

Conclusion. The data arrayed in this chapter seem to show conclusively that from the standpoint of building costs, and of the cost of instruction, the platoon school is more economical than the departmentalized non-platoon school.

CHAPTER VI

THE PERSONAL EQUATION

A school must realize the ideals of the community. Although a school organization may exemplify the principles of sound educational philosophy and may run smoothly as an administrative mechanism, there is still the personal equation to be considered. In the last analysis a successful school must so function as to realize the ideals of the community and command the confidence, good will, and support of the parents of the children who attend it. Furthermore the personal reactions of pupils, teachers, and principals must be considered as important factors. Are the pupils healthy, happy, purposeful, and industrious? Does the organization make for healthier, happier, more enthusiastic, and more industrious teachers? Do teachers and principals find in it an organization through which their educational ideals may find adequate expression?

The limits of this book do not permit of an exhaustive survey of this phase of the Detroit platoon school development. A brief summary of results based upon six years of experience must suffice.

Effect upon teachers. The success of the platoon schools from the beginning has been in large measure due to the favorable attitude of teachers and principals. In the home rooms, teachers experienced in teaching the fundamentals can work under better conditions and

render more effective service than they could render in the non-platoon type of organization. In the special rooms teachers trained in the newer subjects can perform their work amid favorable surroundings. For these and other reasons the number of Detroit elementary teachers who do not look with favor on the platoon organization is negligible.

Effect upon principals. Principals have almost without exception given endorsement to the new organization. The platoon school has come to the principals in the light of a new and stimulating opportunity. Many principals who are now administering platoon schools have passed rapidly from the stage in which they were merely receptive to the idea to that in which they have become avowed enthusiasts. The number who have been lukewarm toward the innovation has been surprisingly small, while on the other hand a great majority of principals of non-platoon schools are awaiting expectantly the day when they may have schools of the new type.

Effect upon pupils. More important still than the attitude of principals and teachers is the psychological effect of the platoon school upon pupils. Does it strike a responsive chord in them? If it does not it has failed signally. Fortunately we have abundant evidence to indicate that pupils are enthusiastic about this kind of school. The reactions of pupils are perhaps best expressed in their spontaneous letters to the superintendent, principals, and teachers and in their communications to the various platoon school weeklies and monthlies. These letters note with satisfaction that pupils in platoon schools

avoid the monotony of sitting all day in one seat and in the same environment; they speak with approval of the variety of the work and of the opportunity to apply themselves intensively to one piece of work for a brief time and then to move on to new surroundings and new undertakings; they refer with pride and enthusiasm to the opportunities offered by the gymnasium, auditorium, and library, and seem to view the school day as a continuous round of pleasant activities with plenty of variety and abundant opportunity to move about and do things. That the feeling of buoyancy and joy which the majority of platoon school pupils feel is the outcome of the greater freedom and variety of this school, of larger opportunities for initiative, and of new and interesting experiences can scarcely be doubted. That this optimistic attitude of mind carries over into the formal work of the school and makes for greater industry and concentration is strongly indicated by the measurement results (Part IV) as well as by the testimony of teachers who work in platoon schools.

Attitude of parents. In a general way the attitude of parents toward the platoon school is a reflection of the attitude of the children. If the child is happy and interested in his school work and is making satisfactory progress in his studies, the school is almost certain to receive the stamp of approval of the parents.

In introducing the new organization into a community, it has been the policy of the school authorities to pave the way by informing the parents in advance of the aims and purposes of the school and by soliciting their support and coöperation. This end has been

attained through parent-teacher associations. Recently principals of non-platoon schools located in old and inadequate buildings have solicited the opinions of parents in those districts as to the advisability of introducing a modified form of platoon organization and in these responses from 85% to 95% of the parents have asked for the platoon school.

CHAPTER VII

CONTROVERSIAL QUESTIONS

While the reorganization of the Detroit elementary school system has progressed amid the overwhelming approval of teachers, pupils, and the general public, it has aroused some opposition, and certain controversial questions have arisen which in fairness should receive consideration here.

Some of these questions have been raised by those who are opposed to all innovations; some by those who labor under a misunderstanding of the situation; and still others by those whose children may have had unpleasant personal experiences with principals or teachers of platoon schools. These questions are in the main inconsequential and can be answered by correcting administrative maladjustments.

Other questions which have been raised are fundamental and some of them strike at the validity of the principles upon which the platoon organization rests. These will be considered in detail.

I. Does Not the Platoon School Organization Make Project Teaching Almost Impossible because of Its Departmentalization?

Dr. Bonser's objection. Dr. F. G. Bonser holds that a highly departmentalized organization such as that in Detroit makes it difficult if not impossible for pupils to pursue project study. He argues for the

single-teacher plan and against the specialist, and believes that [1] "it is by no means unreasonable to expect a teacher to be prepared for that breadth and intensity of work representing all of the larger activities of life which it is reasonable to expect children to experience before they are thirteen years of age."

This theory in some form or other has been maintained for over twenty years. It has been tried with varying degrees of success in small experimental schools and by isolated teachers and groups of teachers in various places. It has never been worked out in an educational unit such as a large city school system. As far as the writer is aware no one has demonstrated with any degree of finality that an elementary grade child can pursue purposeful activity only under the guidance of one teacher. It would seem in fact that a child would labor under a serious handicap if he must receive his stimulation and guidance from one personality in the school. Purposing is a direct outgrowth of the perception of values. Does it not seem reasonable that a child who in the course of his school day meets a number of enthusiastic, stimulating specialists in the library, auditorium, nature study room, industrial arts room, and other special departments, will be awakened to a greater variety of purposeful activities than one who imbibes his inspiration from one person whose enthusiasms must of necessity be limited?

The answer of the platoon school. The most convincing answer is that project teaching is successfully carried on in the platoon schools of Detroit. Educational leaders in Detroit are believers in the

[1] BONSER, F. G., *The Elementary School Curriculum.*

theories of Dr. W. H. Kilpatrick. In the program of instruction the project method is fundamental. Detroit probably places as much emphasis upon learning through purposeful activity as any city. The platoon organization lends itself to individual, class, grade, or school projects. The project may originate in any department of the school and the attainment of the purpose may come only after the individual or the group has utilized material in many or all of the other departments of the school. For example, a class in social science may elect to study the question of immigration to the United States with the idea of presenting their results before a large group in the auditorium. This project originates in the social science room; carries the group to the auditorium for moving pictures and stereopticon views, to the industrial arts department for costumes and scenery, to the music department for songs, to the health department for dances, to the literature department for stories and poems, to the library and home rooms for other material; and ultimates in a pageant in the auditorium which is a final expression of all of the group's efforts and a realization of the project.

The growing complexity of society during the last two decades has brought with it specialization and division of labor. The expanding curriculum in response to this increased complexity has made departmentalization in the schools inevitable. The platoon school has merely accepted the situation and utilized this principle in the most effective way possible. It may be that in the course of time a sufficient number of super-teachers may be evolved who may be able to

comprehend and utilize all of the aspects of human experience that are necessary to direct the elementary child in his purposeful efforts. There is no indication that that day is near at hand. In the meantime the practical administrator must strive as best he may to reconcile his practice with his educational philosophy, conceding, of course, that his actual achievement lags far behind his cherished ideals. Until those who question the practicability of project teaching in a platoon school shall develop an organization in which their theories will work successfully on a large scale, the platoon school must be recognized as a distinct step in advance.

II. Do Not Pupils in Platoon Schools Lose the Personal Touch?

The lack of "mothering." It has been claimed that the child in the platoon school loses the "mothering" to which he is accustomed. In a completely departmentalized school this possibly might be true. In the Detroit platoon school it is not. One of the strongest features of the Detroit plan is that the pupil remains under the control of one teacher two and one half hours of the day. This should be sufficient guarantee that he will not lose to any extent the personal influence of the teacher.

Those who fear the loss of the personal touch in the platoon school are thinking in terms of the old one-room school in which one teacher taught the pupils during the entire school day. As far as Detroit is concerned the day when a pupil recited all day to one teacher has long since passed. A study of the non-platoon schools

shows that even the kindergarten and first-grade pupils now come into contact with several teachers during the day. If we consider grades above the third we find that 44% of the pupils in the fourth grade, 66% of the pupils in the fifth grade, 78% of the pupils in the sixth grade, 84% of the pupils in the seventh grade, and 66% of the pupils in the eighth grade are taught by five or more teachers. The range in these grades is as follows:

Fourth grade from 1 teacher to 10 teachers.
Fifth grade from 2 teachers to 11 teachers.
Sixth grade from 1 teacher to 10 teachers.
Seventh grade from 1 teacher to 9 teachers.
Eighth grade from 2 teachers to 10 teachers.

The answer. It is apparent that if the personal touch were lost by contact with a number of teachers the effects of it would have been apparent in the non-platoon schools years ago. It is a matter of fact that in a platoon school a pupil receives all his instruction in the fundamentals — reading, writing, spelling, and arithmetic — from the home room teacher assisted by a relief teacher for one half hour each day, while in the non-platoon school these subjects are frequently distributed among several teachers. It would seem that as far as this criticism applies to the grades above the second it is not valid.

What shall be said of departmentalization in the first and second grades? No definite data are at hand to warrant a final answer to this question. Our experience has shown, however, that small children have greater power of self-direction than they are ordinarily reputed to have. In schools in which the first and

second grades are a part of the platoon organization, pupils of these grades find little difficulty in following the daily program. They enter enthusiastically into the varied activities of the school and show every indication of being happy, contented, and industrious. First- and second-grade pupils spend two and one half hours a day under the direct control of home room teachers. Here they are taught reading, phonics, spelling, and language.

In schools in which the first and second grades are omitted from the platoon, parents and principals frequently request that they be included in order that pupils in these grades may have the advantages of the special activities.

Special teachers of art, music, and health do meet a large number of pupils daily and consequently do not have the personal contacts as firmly fixed as those of the home room teacher. This weakness, if it is a weakness, is inherent in departmentalization and applies with equal force to the art, music, and health teachers in non-platoon schools, who teach for a short time each week in each room.

III. Are Not Pupils in Platoon Schools under a Nervous Strain?

The question of nervous strain and the answer. It may be admitted at the outset that the activities of the platoon school are more varied, more interesting, and consequently more stimulating than those of the schools of older type. Critics attacked the old schools because they were mechanical, deadening, and uninspiring. It was said that they crushed the pupils'

initiative and spirit. Now we have remedied all of these faults and it is said that the schools are too interesting, too stimulating, and that some pupils are so thrilled by their school experience that they cannot sleep. Our experience has not shown this to be true in the case of the vast majority of children. There always have been and probably always will be individual children with highly organized nervous systems who are overstimulated by almost any kind of group contacts. The platoon organization easily adjusts itself to these cases. Such pupils may attend school for as long or as short a period each day as their parents elect. They may come from an hour and a half each session and receive their instruction in the fundamentals only, or they may attend for a longer period of the day and participate in some of the special class work as well. If the question of physical fitness is involved, pupils may also have a program that will permit them to enter school late in the morning, have an extended noon hour, or go home early in the afternoon.

When a platoon school is first opened the younger children sometimes find difficulty in readjustment, but after the organization has been in operation for a reasonable time all difficulties of this type disappear. In this general connection the question has been raised as to the merits and demerits of the six-hour day which prevails in platoon schools. For the majority of children and especially for those whose home environment is not the best, a six-hour day of judiciously intermingled work-study-play is desirable and practicable. For children whose parents prefer to have them play at home rather than at school a shorter day may be

inaugurated. For children whose physical requirements make it desirable, adjustments of the time schedule are made as indicated above.

IV. Does Not Frequent Change of Classes Waste Time and Cause Disorder?

Loss in time and order. In response to the first part of the question a study of time spent in change of classes was made, and it was found that in a well-managed school not more than six minutes out of the six-hour day were spent in changing classes. This amount of time is too small for serious consideration.

How avoided. The whole question of hall traffic has been made a matter of careful study. In new buildings all home rooms are located on the second floor and all special rooms on the first floor. Pupils in home rooms leave those rooms once in the forenoon and once in the afternoon. At no other time is there a change of classes on this floor. Special classes on the first floor change rooms each half hour. Persons visiting these schools and noting the movement of pupils have erroneously inferred that all pupils were moving frequently. Rightly understood the change of classes is one of the most advantageous features of the organization. It rests pupils and permits them to relax while moving to the various rooms. A frequent change of scene and work is restful and makes for more intense application to each separate task.

Those who fear that the change of classes makes for disorder and confusion are those who look askance at all freedom of action on the part of pupils lest it degenerate into license. This fear has no basis in fact.

Platoon schools vary of course in the degree of self-control exercised by pupils, but it is worthy of note that disorder in these schools is rare, and that pupils in general are too busy and too happily engaged to be disorderly. Misbehavior in school is often the outgrowth of monotony and an intense desire for physical relaxation and relief. Frequent change of classes in platoon schools breaks the monotony and acts as a safety valve.

CHAPTER VIII

CONCLUSION

Effect of complexity of modern society. A genetic study of the elementary school curriculum reveals it as the product of many diverse influences, religious, educational, industrial, and political, which have been active from time to time since the days of the Protestant Reformation. The rapidly expanding curriculum reflects the growing complexity of modern society.

If the school is to prepare a child for contemporary social life it must give him a cross-section of life itself; offer him a variety of contacts; arouse in him a many-sided interest; afford him an opportunity for purposing and for the realization of his purposes; and develop in him initiative and habits of self-appraisal, self-direction, and self-control. To accomplish these ends the school must provide a broad, varied, and highly enriched curriculum.

The school organization exists solely as a vehicle through which the curriculum may effectively function. The same influences which have shaped the curriculum have indirectly determined the changing character of the organization. Nevertheless, the conservatism of the schoolmaster has often preserved the existing forms of organization long after the expansion and enrichment of the curriculum has indicated the necessity of re-

organization and readjustment. Ample evidence of this is found in the reluctance of the Boston schoolmasters to accept the new graded system as introduced in the Quincy Grammar School in 1848, and in the still more impressive fact that in spite of the unparalleled progress of the last half-century this seventy-five-year-old grammar school organization with slight modification still prevails throughout the land, and is warmly approved and defended by many of the present generation of schoolmen against any innovation.

The present-day advocates of the traditional grammar school organization have made but one concession to the demands of the modern curriculum. While they cling to the form of the old graded plan they have sought to combine with it some method of departmentalization. This study proves without question that such an organization is a makeshift and that it is expensive and wasteful. While the process of evolution may be slow, no intelligent person who knows the facts can doubt that at an early day the old graded organization must give way to a new organization more in harmony with the ideals and requirements of this generation. The signs of the times indicate that that day is near at hand.

Before 1840 few people gave serious thought to the relationship between the curriculum and organization and the physical environment in which they must function. Fundamental architectural changes have come gradually because modifications in buildings have in the main waited upon readjustments in organization. The old "hall" plan of building gradually gave way after 1848 to the type of structure exemplified in the

Quincy Grammar School. The introduction of the graded school made this imperative. But since the old grammar school organization still persists with slight modification there has been no fundamental change in the basic room units in most of the buildings erected in recent times. Such architectural readjustments as have been made were in response to the introduction of entirely new educational units such as the kindergarten, manual and industrial arts, and health education. In a majority of the school buildings erected in the last decade even these units have been provided for in traditional classrooms. Today, however, there are signs of progress, and an increasing number of school systems are beginning to erect buildings in terms of the modern curriculum and of the needs of the community.

From a consideration of these facts we are driven irresistibly to the conclusion that while the curriculum has kept pace with the evolution of society, the organization and building are many years behind the times. The logic of the situation demands a new organization and a new building. The platoon school meets this demand because it squares with the past.

How does the platoon school serve the present? The data embraced in this study presents convincing evidence that the platoon school reflects in the largest way possible the best ideals and aims of society; that in its theories and in its practice it does honor to the great educational leaders, Rousseau, Pestalozzi, Froebel, and Herbart, and to the great contemporary molders of educational thought, Dewey, Thorndike, Kilpatrick, Judd, and Courtis; that before all else it gives con-

sideration to the child's physical well-being and assures him an opportunity to work, study, and play under favorable conditions; that in spite of its marked emphasis on the physical and cultural phases of education a scientific measurement of results in the three R's in the platoon schools over a period of years reveals a higher standard in those schools than in the non-platoon schools over a like period; that the platoon organization as developed in Detroit has proved to be a smooth-running administrative mechanism which operates to the satisfaction of pupils, teachers, principals, and communities; and finally, that without making unreasonable financial demands upon the public, the platoon school offers a varied and enriched curriculum taught by well-trained specialists, in a physical environment that conserves the health, safety, and happiness of the children.

What does the platoon school promise for the future? If in the light of present tendencies one may predict what is to follow in education, it would appear that the school of the future will provide for greater individual freedom and opportunity for initiative; that the curriculum will be still further differentiated, and that there will be individual-group instruction. The platoon school is preparing the way for this outcome by removing fixed and rigid restraints and making the pupils free and self-directing. If in the future the curriculum is broken into more varied units the special facilities of the platoon school building will lend themselves readily to newer forms of activity.

In these days when the results of scientific research are rapidly breaking down traditions and developing

new and more rational points of view, it is not to be expected that any form of organization will stand for a long period of time without readjustment. The platoon school is only the next step, but it is a long step in the direction of progress and worthwhile achievement.

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APPENDIX

PROGRAM OF SPECIAL ACTIVITIES, TWELVE SECTION PLATOON SCHOOL — GRADES 1B THROUGH 3A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1–1:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium	M.	12	2	4	11	1	3	8	10	6	7	9	5
	T.	12	2	4	11	1	3	8	10	6	7	9	5
	W.	12	2	4	11	1	3	8	10	6	7	9	5
	T.	12	2	4	11	1	3	8	10	6	7	9	5
	F.	12	2	4	11	1	3	8	10	6	7	9	5
Gymnasium	M.	10	6	8	9	5	5	2	12	4	1	11	3
	T.	10	6	8	9	5	7	2	12	4	1	11	3
	W.	10	6	8	9	5	7	2	12	4	1	11	3
	T.	10	6	8	9	5	7	2	12	4	1	11	3
	F.	10	6	8	9	5	7	2	12	4	1	11	3
Play.....	M.	2	4	12	1	3	11	6	8	10	5	7	9
	T.	2	4	12	1	3	11	6	8	10	5	7	9
	W.	2	4	12	1	3	11	6	8	10	5	7	9
	T.	2	4	12	1	3	11	6	8	10	5	7	9
	F.	2	4	12	1	3	11	6	8	10	5	7	9
Literature..	M.	8	10	6	7	9	5	4	2	12	3	1	11
	T.	8	10	6	7	9	5	4	2	12	3	1	11
	W.	8	10	6	7	9	5	4	2	12	3	1	11
	T.	8	10	6	7	9	5	4	2	12	3	1	11
	F.	8	10	6	7	9	5	4	2	12	3	1	11
Science....	M.	6	8	10	5	7	9	12	4	2	11	3	1
	T.	6	8	10	5	7	9	12	4	2	11	3	1
	W.	6	8	10	5	7	9	12	4	2	11	3	1
	T.	6	8	10	5	7	9	12	4	2	11	3	1
	F.	6	8	10	5	7	9	12	4	2	11	3	1
Music and Arts.....	M.	4 S. S.	12	2	3 S. S.	11	1	10	6	8	9	5	7
	T.	4	12	2 S. S.	3	11	1 S. S.	10	6	8	9	5	7 S. S.
	W.	4	12	2	3	11	1	10	6 S. S.	8	9	5 S. S.	7
	T.	4	12 S. S.	2	3	11 S. S.	1	10	6	8 S. S.	9	5	7
	F.	4	12	2	3	11	1	10 S. S.	6	8	9 S. S.	5	7

KEY

Class 1 — B1 }
2 — B1 }
3 — A1 }
4 — A1 }

Class 5 — B2 }
6 — B2 }
7 — A2 }
8 — A2 }

Class 9 — B3 }
10 — B3 }

Class 11 — A3 }
12 — A3 }

S. S. — Supervised Study

PROGRAM OF SPECIAL ACTIVITIES, SIXTEEN SECTION PLATOON SCHOOL — GRADES 1B THROUGH 6A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1–1:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium	M.	2 Lit.	8–6	16–14	1 Lit.	7–5	15–13	8 Lit.	4–2	12–10	7 Lit.	3–1	9–11
	T.	2 Lit.	8–6	14	1 Lit.	7–5	13	8 Lit.	4–2	12–10	7 Lit.	3–1	9–11
	W.	2 Lit.	8–6	16–14	1 Lit.	7–5	15–13	8 Lit.	4–2	12–10	7 Lit.	3–1	9–11
	T.	2 Lit.	8–6	16–14	1 Lit.	7–5	15–13	8 Lit.	4–2	12–10	7 Lit.	3–1	9–11
	F.	2 Lit.	8–6	16	1 Lit.	7–5	15	8 Lit.	4–2	12–10	7 Lit.	3–1	9–11
Gymnasium	M.	4	2	10–12	3	1	9–11	6	8	16–14	5	7	15–13
	T.	4	2	10–12	3	1	9–11	6	8	16–14	5	7	15–13
	W.	4	2	10–12	3	1	9–11	6	8	16–14	5	7	15–13
	T.	4	2	10–12	3	1	9–11	6	8	16–14	5	7	15–13
	F.	4	2	10–12	3	1	9–11	6	8	16–14	5	7	15–13
Play.....	M.	8–6	16–14		7–5	15–13		4–2	10		3–1	9	
	T.	8–6	14		7–5	13		4–2	10		3–1	9	
	W.	8–6	16		7–5	15		4–2	10–12		3–1	9–11	
	T.	8–6	14		7–5	13		4–2	12		3–1	11	
	F.	8–6	16		7–5	15		4–2	12		3–1	11	
Literature..	M.	10	12	4	9	11	3	16	14	6	15	13	5
	T.	10	12	4	9	11	3	16	14	6	15	13	5
	W.	10	12	4	9	11	3	16	14	6	15	13	5
	T.	10	12	4	9	11	3	16	14	6	15	13	5
	F.	10	12	4	9	11	3	16	14	6	15	13	5
Science....	M.	12	10	2	11	9	1	14	16	8	13	15	7
	T.	12	10	2	11	9	1	14	16	8	13	15	7
	W.	12	10	2	11	9	1	14	16	8	13	15	7
	T.	12	10	2	11	9	1	14	16	8	13	15	7
	F.	12	10	2	11	9	1	14	16	8	13	15	7

Music.....	M.	16	4 Science	6	15	3 Science	5 S. S.	10	6 Science	4 S. S.	9	5 Science	3
	T.	14	4 Science	8	13	3 Science	7	10	6 Science	2	9	5 Science	1
	W.	16	4 Science	6 S. S.	15	3 Science	5	12	6 Science	4	11 S. S.	5 Science	3
	T.	14	4 Science	8	13	3 Science	7	12	6 Science	2	11	5 Science	1
	F.		4 Science	6		3 Science	5	12 S. S.	6 Science	4	11	5 Science	3 S. S.
Art.....	M.	14 S. S.		8 S. S.	13 S. S.		7	12	12	2	11	11	1 S. S.
	T.			6			5	12	12	4	11	11	3
	W.	14	14	8	13	13	7	10 S. S.		2	9 S. S.		1
	T.	16	16	6	15	15	5	10	10	4	9	9	3
	F.	16 S. S.		8	15 S. S.		7 S. S.	10	10	2 S. S.	9	9	1
Manual Arts.....	M.												
	T.	16*	16*	16*	15*	15*	15*						
	W.												
	T.												
	F.	14*	14*	14*	13*	13*	13*						

KEY

Class 1 — B1
2 — B1
3 — A1
4 — B2

Class 5 — A2
6 — B3
7 — A3
8 — A3

Class 9 — B4
10 — B4
11 — A4
12 — A4

Class 13 — B5
14 — A5
15 — B6
16 — A6

Lit. — Literature

S. S. — Supervised Study

* — Classes sent to adjacent schools for manual arts

PROGRAM OF SPECIAL ACTIVITIES, EIGHTEEN SECTION PLATOON SCHOOL — GRADES 1B THROUGH 6A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1–1:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium	M.	12–10	6	16	9–11	5	15	8	2	4	7	1–3	13
	T.	12–10	6	18	9–11	5	17	8	2–4	14	7	1–3	13
	W.	12–10	6	16–18	9–11	5	15–17	8	2–4	14	7	1–3	13
	T.	12–10	6	16–18	9–11	5	15–17	8	2–4	14	7	1–3	13
	F.	12–10	6	16–18	9–11	5	15–17	8	2–4	14	7	1–3	13
Gymnasium	M.	4–2	8	14	3–1	7	13	12–10	6	16–18	9–11	5	15–17
	T.	4–2	8	14	3–1	7	13	12–10	6	16–18	9–11	5	15–17
	W.	4–2	8	14	3–1	7	13	12–10	6	16–18	9–11	5	15–17
	T.	4–2	8	14	3–1	7	13	12–10	6	16–18	9–11	5	15–17
	F.	4–2	8	14	3–1	7	13	12–10	6	16–18	9–11	5	15–17
Play	M.	16	10	6	15	9	5	4	8	2	3	7	1
	T.	18	10	6	17	9	5	4	14–8	2	3	7–13	1
	W.	16	10–12	6	15	9–11	5	4	8	2	3	7	1
	T.	18	10–12	6	17	9–11	5	4	14–8	2	3	7–13	1
	F.	16–18	10–12	6	15–17	9–11	5	4	14–8	2	3	7–13	1
Literature	M.	14	2	4	13	1	3	18	16	6	17	15	5
	T.	14	2	4	13	1	3	18	16	6	17	15	5
	W.	14	2	4	13	1	3	18	16	6	17	15	5
	T.	14	2	4	13	1	3	18	16	6	17	15	5
	F.	14	2	4	13	1	3	18	16	6	17	15	5
Science	M.		14	8		13	7	16	18	12	15	17	11
	T.		14	8		13	7	16	18	12	15	17	11
	W.		14	8		13	7	16	18	12	15	17	11
	T.		14	8		13	7	16	18	12	15	17	11
	F.		14	8		13	7	16	18	12	15	17	11

Auxiliary . .	M.	8 Lit.	4 Science	2 Science	7 Lit.	3 Science	1 Science	6 Science	12 Lit.	10 Science	5 Science	11 Lit.	9 Science
	T.	8 Lit.	4 Science	2 Science	7 Lit.	3 Science	1 Science	6 Science	12 Lit.	10 Science	5 Science	11 Lit.	9 Science
	W.	8 Lit.	4 Science	2 Science	7 Lit.	3 Science	1 Science	6 Science	12 Lit.	10 Science	5 Science	11 Lit.	9 Science
	T.	8 Lit.	4 Science	2 Science	7 Lit.	3 Science	1 Science	6 Science	12 Lit.	10 Science	5 Science	11 Lit.	9 Science
	F.	8 Lit.	4 Science	2 Science	7 Lit.	3 Science	1 Science	6 Science	12 Lit.	10 Science	5 Science	11 Lit.	9 Science
Music.	M.		16	10	5 S. S.	15	9	2	10 Lit.	8 S. S.	1	9 Lit.	7
	T.		18	10		17 S. S.	9	14	10 Lit.	4	13 S. S.	9 Lit.	3
	W.	6	16	12 S. S.	5	15	11 S. S.	2	10 Lit.	8	1	9 Lit.	7
	T.	6 S. S.	18	12	5	17	11	14 S. S.	10 Lit.	4	13	9 Lit.	3
	F.	6	18 S. S.	12		17	11	14	10 Lit.	8	13	9 Lit.	7 S. S.
Art.	M.	6	12	12		11	11		4		13	13	3 S. S.
	T.	6	12	12	5	11	11	2 S. S.		8	1 S. S.		7
	W.	18	18	10	17	17	9	14	14	4 S. S.	13	13	3
	T.	16	16	10 S. S.	15	15	9	2		8	1		7
	F.		16 S. S.	10	5	15 S. S.	9 S. S.	2		4	1		3
Manual Arts. . . .	M.	18	18	18	17	17	17	14	14	14			
	T.	16	16	16	15	15	15						
	W.	Adjacent Schools			Adjacent Schools			Adjacent Schools			Adjacent Schools		
	T.	Adjacent Schools			Adjacent Schools			Adjacent Schools			Adjacent Schools		
	F.	Adjacent Schools			Adjacent Schools			Adjacent Schools			Adjacent Schools		

KEY

Class 1 — B1
Class 2 — B1
Class 3 — A1
Class 4 — B2
Class 5 — A2
Class 6 — A2

Class 7 — A2
Class 8 — B3
Class 9 — A3
Class 10 — A3

Class 11 — B4
Class 12 — A4
Class 13 — A4
Class 14 — B5

Class 15 — A5
Class 16 — A5
Class 17 — B6
Class 18 — A6

S. S. — Supervised Study

Lit. — Literature

PROGRAM OF SPECIAL ACTIVITIES, TWENTY SECTION PLATOON SCHOOL — GRADES 1B THROUGH 6A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1–1:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium	M.	12	8–6	18	11	5–7	17	10	4–2	14	9	1–3	13–15
	T.	12	8–6	20	11	5–7	19	10	4–2	16–14	9	1–3	13
	W.	12	8–6	18–20	11	5–7	17–19	10	4–2	16–14	9	1–3	13–15
	T.	12	8–6	18–20	11	5–7	17–19	10	4–2	16–14	9	1–3	13–15
	F.	12	8–6	18–20	11	5–7	17–19	10	4–2	16–14	9	1–3	13–15
Gymnasium	M.	14–16	4–2	10	15–13	3–1	9	18–20	6–8	12	17–19	5–7	11
	T.	14–16	4–2	10	15–13	3–1	9	18–20	6–8	12	17–19	5–7	11
	W.	14–16	4–2	10	15–13	3–1	9	18–20	6–8	12	17–19	5–7	11
	T.	14–16	4–2	10	15–13	3–1	9	18–20	6–8	12	17–19	5–7	11
	F.	14–16	4–2	10	15–13	3–1	9	18–20	6–8	12	17–19	5–7	11
Play.....	M.	6		8–12	5		7–5	4		2	1		3
	T.	20		8–6	19	11	7–5	2		4–10	1	9	3–9
	W.	18		8–6	17		7–11	14	10	4–2	13		3–1
	T.	18		8–6	17	11	7–5	14–16	10	4–2	15	9	3–1
	F.	20	12	8–6	19	11	7–5	16	10	4–2	15	9–13	3–1
Literature..	M.	4	16	14	3	15	13	8	20	18	7	19	17
	T.	4	16	14	3	15	13	8	20	18	7	19	17
	W.	4	16	14	3	15	13	8	20	18	7	19	17
	T.	4	16	14	3	15	13	8	20	18	7	19	17
	F.	4	16	14	3	15	13	8	20	18	7	19	17
Science....	M.	10	14	16	9	13	15	12	18	20	11	17	19
	T.	10	14	16	9	13	15	12	18	20	11	17	19
	W.	10	14	16	9	13	15	12	18	20	11	17	19
	T.	10	14	16	9	13	15	12	18	20	11	17	19
	F.	10	14	16	9	13	15	12	18	20	11	17	19

Auxiliary . .	M.	2 Science	10 Lit.	4 Science	1 Science	9 Lit.	3 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	T.	2 Science	10 Lit.	4 Science	1 Science	9 Lit.	3 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	W.	2 Science	10 Lit.	4 Science	1 Science	9 Lit.	3 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	T.	2 Science	10 Lit.	4 Science	1 Science	9 Lit.	3 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	F.	2 Science	10 Lit.	4 Science	1 Science	9 Lit.	3 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
Music.	M.	8			7		11			10	3	15	9
	T.		20			19	11	4	16		13		
	W.	8	18	12	7	17		2	14	10	1	13	
	T.	6	20		5	19		4	16		3	15	9
	F.	6	18	12	5	17		2	14		1		
Art.	M.	18	18	6	17	17		14	14	4	13	13	1
	T.	6	12	12	5			14	14	2	3		1
	W.	20	20		19	19	5	16	16		15	15	9
	T.	8	12	12	7		11	2		10	13	13	
	F.	8			7		11	4		10	3		9
Library. . . .	M.		12	2 Lit.		11	1 Lit.	2	10	6 Lit.	15	9	5 Lit.
	T.	8		2 Lit.	7		1 Lit.	16	10	6 Lit.		13	5 Lit.
	W.	6	12	2 Lit.	5	11	1 Lit.	4		6 Lit.	3	9	5 Lit.
	T.	20	18	2 Lit.	19	17	1 Lit.		14	6 Lit.	1		5 Lit.
	F.	18	20	2 Lit.	17	19	1 Lit.	14	16	6 Lit.	13	15	5 Lit.
Manual Arts. . . .	M.	20	20	20	19	19	19	16	16	16			
	T.	18	18	18	17	17	17				15	15	15
	W.												
	T.												
	F.												

KEY

Class 1 — B1
2 — B1
3 — A1
4 — A1
5 — B2
6 — B2

Class 7 — A2
8 — A2
9 — B3
10 — A3
11 — A3
12 — B4

Class 13 — A4
14 — A4
15 — B5
16 — A5

Class 17 — B6
18 — B6
19 — A6
20 — A6

Lit. — Literature

PROGRAM OF SPECIAL ACTIVITIES, TWENTY SECTION PLATOON SCHOOL — GRADES 1B THROUGH 8A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1–1:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium	M.	12	6–8	18	11	5–7	17	10	4–2	14	9	3–1	13
	T.	12	6–8	20	11	5–7	19	10	4–2	16	9	3–1	13–15
	W.	12	6–8	18	11	5–7	17	10	4–2	14	9	3–1	13–15
	T.	12	6–8	20	11	5–7	19	10	4–2	14–16	9	3–1	13
	F.	18	6–8	20	19	5–7	17	10	4–2	14–16	9	3–1	15
Gymnasium	M.	14–16	4–2	10	13–15	1–3	9	18–20	6–8	12	17–19	5–7	11
	T.	14–16	4–2	10	13–15	1–3	9	18–20	6–8	12	17–19	5–7	11
	W.	14–16	4–2	10	13–15	1–3	9	18–20	6–8	12	17–19	5–7	11
	T.	14–16	4–2	10	13–15	1–3	9	18–20	6–8	12	17–19	5–7	11
	F.	14–16	4–2	10	13–15	1–3	9	18–20	6–8	12	17–19	5–7	11
Play	M.	6		8	5		7			4–2	13		3–1
	T.	8		6	7		5			4–2	13–3		1
	W.	8	12	6		11	5–7		14	4–2	3	9	1
	T.			8–12			5–11	4	14	10–2			3–1
	F.			6	7		5	2	10	4	1–3		9
Literature	M.	2	16	14	1	15	13	8	18	20	7	17	19
	T.	2	16	14	1	15	13	8	18	20	7	17	19
	W.	2	16	14	1	15	13	8	18	20	7	17	19
	T.	2	16	14	1	15	13	8	18	20	7	17	19
	F.	2	16	14	1	15	13	8	18	20	7	17	19
Science	M.	10	14	16	9	13	15	12	20	18	11	19	17
	T.	10	14	16	9	13	15	12	20	18	11	19	17
	W.	10	14	16	9	13	15	12	20	18	11	19	17
	T.	10	14	16	9	13	15	12	20	18	11	19	17
	F.	10	14	16	9	13	15	12	20	18	11	19	17

Auxiliary . .	M.	4 Science	10 Lit.	2 Science	3 Science	9 Lit.	1 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	T.	4 Science	10 Lit.	2 Science	3 Science	9 Lit.	1 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	W.	4 Science	10 Lit.	2 Science	3 Science	9 Lit.	1 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	T.	4 Science	10 Lit.	2 Science	3 Science	9 Lit.	1 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
	F.	4 Science	10 Lit.	2 Science	3 Science	9 Lit.	1 Science	6 Science	12 Lit.	8 Science	5 Science	11 Lit.	7 Science
Music.	M.	18		6	17		5	4	14			13	9
	T.		20	12		19	11	2	16		1	15	3
	W.	18		12	5		11	14		10	15		9
	T.	8		6	7	19		2		4	1	13	
	F.	20		8	17		7	16		10			3
Art.	M.		12	12		11	11	2	10	10	1		
	T.	6		8	5		7	4	10	10		9	9
	W.			8	17	17		4			13	13	3
	T.	20	20		5		7	16	16		3	9	9
	F.	6	18	18		19	19	14	14	2	15	15	1
Library. . . .	M.	8	18	4 Lit.	7	17	3 Lit.	14		6 Lit.	3	9	5 Lit.
	T.	20	12	4 Lit.	19	11	3 Lit.	16		6 Lit.	15	13	5 Lit.
	W.	6	18	4 Lit.	7		3 Lit.	2	10	6 Lit.	1	15	5 Lit.
	T.	6	12	4 Lit.	19	11	3 Lit.	14	10	6 Lit.	13		5 Lit.
	F.	8	20	4 Lit.	5	17	3 Lit.	4	16	6 Lit.		9	5 Lit.
Manual Arts. . . .	M.	20	20	20	19	19	19	16	16	16	15	15	15
	T.	18	18	18	17	17	17	14	14	14			
	W.	20	20	20	19	19	19	16	16	16			
	T.	18	18	18	17	17	17				15	15	15
	F.	12	12	12	11	11	11				13	13	13

KEY

Class 1 — B1
2 — B1
3 — A1
4 — B2
5 — A2
6 — B3

Class 7 — A3
8 — A3
9 — B4
10 — A4
11 — B5
12 — A5

Class 13 — B6
14 — A6
15 — B7
15 — A6

Class 17 — A7
18 — A7
19 — B8
20 — A8

Lit. — Literature

PROGRAM OF SPECIAL ACTIVITIES, TWENTY-FOUR SECTION PLATOON SCHOOL — GRADES 1B THROUGH 6A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	1–1:30	1:30–2	2–2:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium	M.	16–14	6–8	22	15–13	5–7	21	12–10	2–4	18	11–9	1–3	17
	T.	14	6–8	24–22	13	5–7	21–23	12–10	2–4	20–18	11–9	1–3	19–17
	W.	16–14	6–8	24	15–13	5–7	23	12–10	2–4	20	11–9	1–3	19
	T.	16	8–8	24–22	15	5–7	23–21	12–10	2–4	20–18	11–9	1–3	19–17
	F.	16–14	6–8	24–22	15–13	5–7	23–21	12–10	2–4	20–18	11–9	1–3	19–17
Gymnasium	M.	12–10	2–4	20–18	11–9	1–3	19–17	16–14	6–8	24–22	15–13	5–7	23–21
	T.	12–10	2–4	20–18	11–9	1–3	19–17	16–14	6–8	24–22	15–13	5–7	23–21
	W.	12–10	2–4	20–18	11–9	1–3	19–17	16–14	6–8	24–22	15–13	5–7	23–21
	T.	12–10	2–4	20–18	11–9	1–3	19–17	16–14	6–8	24–22	15–13	5–7	23–21
	F.	12–10	2–4	20–18	11–9	1–3	19–17	16–14	6–8	24–22	15–13	5–7	23–21
Play	M.	22	14	6	21	13	5	18	10	2–4	17	9	1–3
	T.	24		6–8	23	13	5–7	20		2–4	19		1–3
	W.	24	14	6–8	23		5–7	20		2–4	19		1–3
	T.	6	16	8	5	15	7	2	12–10	4	1	11–9	3
	F.	22	16	6–8	21	15	5–7	18	12	2–4	17	11	1–3
Science—I	M.	2	10	4	1	9	3	6	14	8	5	13	7
	T.	2	10	4	1	9	3	6	14	8	5	13	7
	W.	2	10	4	1	9	3	6	14	8	5	13	7
	T.	2	10	4	1	9	3	6	14	8	5	13	7
	F.	2	10	4	1	9	3	6	14	8	5	13	7
Science—II	M.	20	18	12	19	17	11	22	24	16	21	23	15
	T.	20	18	12	19	17	11	22	24	16	21	23	15
	W.	20	18	12	19	17	11	22	24	16	21	23	15
	T.	20	18	12	19	17	11	22	24	16	21	23	15
	F.	20	18	12	19	17	11	22	24	16	21	23	15

Literature — I.....	M.	4	12	2	3	11	1	8	16	6	7	15	5
	T.	4	12	2	3	11	1	8	16	6	7	15	5
	W.	4	12	2	3	11	1	8	16	6	7	15	5
	T.	4	12	2	3	11	1	8	16	6	7	15	5
	F.	4	12	2	3	11	1	8	16	6	7	15	5
Literature — II....	M.	18	20	10	17	19	9	24	22	14	23	21	13
	T.	18	20	10	17	19	9	24	22	14	23	21	13
	W.	18	20	10	17	19	9	24	22	14	23	21	13
	T.	18	20	10	17	19	9	24	22	14	23	21	13
	F.	18	20	10	17	19	9	24	22	14	23	21	13
Music.....	M.	6		14	5		13	2		10	1		9
	T.	8	22		7	21		4	18		3	17	
	W.	6	24	16	5	23	15	2	20	12	1	19	11
	T.	24		16	23		15	20		12	19		11
	F.	8	22	14	7	21	13	4	18	10	3	17	9
Applied Art	M.	8	16	16	7	15	15	4	12	12	3	11	11
	T.	6	14	14	5			2	10	10	1	9	9
	W.	8			7	13	13	4	10	10	3	9	9
	T.	22	22	6	21	21	5	18	18	2	17	17	1
	F.	24	24		23	23		20	20		19	19	
Library.....	M.	S. S.	22	8	S. S.	21	7	S. S.	18	S. S.	S. S.	17	S. S.
	T.	22	24	S. S.	21	23	13	18	20	S. S.	17	19	S. S.
	W.	S. S.	16	14	S. S.	15	S. S.	S. S.	12	S. S.	S. S.	11	S. S.
	T.	8	24	S. S.	7	23	S. S.	4	20	10	3	19	9
	F.	6	14	16	5	13	15	2	10	12	1	9	11
Manual Arts.....	M.	24	24	24	23	23	23	20	20	20	19	19	19
	T.	16	16	16	15	15	15		12	12		11	11
	W.	22	22	22	21	21	21	18	18	18	17	17	17
	T.	14	14	14	13	13	13	Used by	special	classes			
	F.			Used by	groups	from	adjacent	schools.					

Program of Special Activities, Twenty-four Section Platoon School — Grades 1B through 6A (*Continued*)

KEY

Class 1 — B1	Class 7 — B3	Class 13 — B5	Class 19 — B6	S. S. — Supervised Study from Home Rooms.
2 — B1	8 — A3	14 — B5	20 — B6	
3 — A1	9 — B4	15 — B5	21 — B6	
4 — A1	10 — B4	16 — A5	22 — A6	
5 — B2	11 — A4	17 — A5	23 — A6	
6 — A2	12 — A4	18 — A5	24 — A6	

NOTE:

1. The above is a program of the special activities of all children for an entire week in a 24-section platoon school or a school accommodating 24 classes or groups.

2. Each number represents a definite class as shown by key at bottom of program. Classes in brackets represent groups belonging to each of the twelve home rooms.

While classes indicated by even numbers are in special activities, odd numbered or alternating sections are in home rooms and vice versa.

3. The twelve vertical columns represent the half hour periods for special activities for the entire week. These columns are subdivided into daily periods according to subjects designated at left of program.

4. This form makes possible the tracing of any group through all of its respective activities throughout the entire week. To illustrate: The special activities of any group in the building for the first periods for every day in the week may be found in the first vertical column at the left of the program, special activities for following periods are found in succeeding columns.

For example, in above program; Class 8 (A3) during the first period is found on Monday and Wednesday in the applied art room, Tuesday and Friday in the music room, and Thursday in the library; second period daily in the auditorium; third period on Monday in the library; balance of the week, for this period, on the playground. At 10 o'clock this group goes to the home room, remaining there until 11:30, when school is dismissed. A luncheon period of one hour follows.

In the afternoon for the first period (12:30–1:00) Class 8 is found daily in the literature room; second period daily in the gymnasium; and the third period daily in the science room. At 2:00 o'clock the group goes to the home room again for an hour and a half, remaining there until 3:30, dismissal time.

For the greater convenience of the reader, the next program is begun on page 246. It may thus be read continuously. Notes applying to the program on pages 246–247 may be found on page 248.

PROGRAM OF SPECIAL ACTIVITIES, TWENTY-FOUR SECTION PLATOON SCHOOL — GRADES 1B THROUGH 8A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1–1:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium	M.	16–14	6–8	22	15–13	5–7	21	12–10	2–4	18	11–9	1–3	17
	T.	16–14	6–8	24	15–13	5–7	23	12–10	2–4	20	11–9	1–3	17–19
	W.	16–14	6–8	22	15–13	5–7	21	12–10	2–4	18	11–9	1–3	17–19
	T.	16–14	6–8	24	15–13	5–7	23	12–10	2–4	18–20	11–9	1–3	17
	F.	14	6–8	24–22	13	5–7	21–23	12–10	2–4	18–20	11–9	1–3	19
Gymnasium	M.	10–12	2–4	18–20	9–11	1–3	17–19	14–16	6–8	22–24	13–15	5–7	21–23
	T.	10–12	2–4	18–20	9–11	1–3	17–19	14–16	6–8	22–24	13–15	5–7	21–23
	W.	10–12	2–4	18–20	9–11	1–3	17–19	14–16	6–8	22–24	13–15	5–7	21–23
	T.	10–12	2–4	18–20	9–11	1–3	17–19	14–16	6–8	22–24	13–15	5–7	21–23
	F.	10–12	2–4	18–20	9–11	1–3	17–19	14–16	6–8	22–24	13–15	5–7	21–23
Play	M.		14	6–8		13	5–7	2	10	4		9–17	1–3
	T.	6		8	5		7		10	2–4	3	9	1
	W.		16	6–8		15	5		10–12	2–4	3–17	11	1
	T.		16	6		15	5–7	18	10	2–4		9	1–3
	F.	6	14	8	5	13	7	18	12	2–4		9–11	1–3
Literature — I	M.	4	12	2	3	11	1	6	16	8	5	15	7
	T.	4	12	2	3	11	1	6	16	8	5	15	7
	W.	4	12	2	3	11	1	6	16	8	5	15	7
	T.	4	12	2	3	11	1	6	16	8	5	15	7
	F.	4	12	2	3	11	1	6	16	8	5	15	7
Literature — II	M.	20	18	10	19	17	9	24	22	14	23	21	13
	T.	20	18	10	19	17	9	24	22	14	23	21	13
	W.	20	18	10	19	17	9	24	22	14	23	21	13
	T.	20	18	10	19	17	9	24	22	14	23	21	13
	F.	20	18	10	19	17	9	24	22	14	23	21	13
Science — I	M.	2	10	4	1	9	3	8	14	6	7	13	5
	T.	2	10	4	1	9	3	8	14	6	7	13	5
	W.	2	10	4	1	9	3	8	14	6	7	13	5
	T.	2	10	4	1	9	3	8	14	6	7	13	5
	F.	2	10	4	1	9	3	8	14	6	7	13	5

Science — II	M.	18	20	12	17	19	11	22	24	16	21	23	15
	T.	18	20	12	17	19	11	22	24	16	21	23	15
	W.	18	20	12	17	19	11	22	24	16	21	23	15
	T.	18	20	12	17	19	11	22	24	16	21	23	15
	F.	18	20	12	17	19	11	22	24	16	21	23	15
Music	M.	6		16	5		15		12	10	3		9
	T.		24	14		23	13	2	20		1	19	11
	W.	8	22		7	21	15	4	18		19	17	11
	T.	6	24	16	5	23		2	20	10	1	17	
	F.	8	22	14	7	21	13	4	18	12	3		9
Art	M.	22	22		21	21		18	18	2	1	11	11
	T.	8	16	16	7	15	15	4	12	12	17	17	9
	W.	6	14	14	5	13	13	2		10	1	9	3
	T.	8	14	14	7	13	13	4	12	12	3	11	11
	F.	24	24	6	23	23	5	20	20	10	19	19	
Library	M.	8	16	14	7	15	13	4		12	17	S. S.	
	T.	24	14	6	23	13	5	20		10	19	11	3
	W.	22		16	21	S. S.	7	18		12	S. S.	19	9
	T.	24	S. S.	8	23		15	20	18	S. S.	17		9
	F.	22	S. S.		21	S. S.		2	10	S. S.	1		11
Manual Arts	M.	24	24	24	23	23	23	20	20	20	19	19	19
	T.	22	22	22	21	21	21	18	18	18			
	W.	24	24	24	23	23	23	20	20	20			
	T.	22	22	22	21	21	21				19	19	19
	F.	16	16	16	15	15	15				17	17	17

KEY

Class 1 — B1
Class 2 — B1
Class 3 — A1
Class 4 — A1
Class 5 — B2
Class 6 — A2

Class 7 — B3
Class 8 — B3
Class 9 — A3
Class 10 — A3
Class 11 — B4
Class 12 — B4

Class 13 — A4
Class 13 — A4
Class 15 — B5
Class 16 — A5
Class 17 — B6
Class 18 — A6

Class 19 — B7
Class 20 — A7
Class 21 — B8
Class 22 — B8
Class 23 — A8
Class 24 — A8

S. S. — Supervised Study

ASSIGNMENT OF TEACHER'S WORK IN SPECIAL ACTIVITIES, TWENTY-FOUR SECTION PLATOON SCHOOL
GRADES 1B THROUGH 8A

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1–1:30	1:30–2	2–2:30	2:30–3	3–3:30
Auditorium — I.....	M.	Assist in Audit.	6–8	Rest	15–13	Assist in Audit.	21	Assist in Audit.	2–4	Rest	9–11	Assist in Audit.	17
	T.	Audit.	6–8	Rest	15–13	Audit.	23	Audit.	2–4	Rest	9–11	Audit.	17–19
	W.	Audit.	6–8	Rest	15–13	Audit.	21	Audit.	2–4	Rest	9–11	Audit.	17–19
	T.	Audit.	6–8	Rest	15–13	Audit.	23	Audit.	2–4	Rest	9–11	Audit.	17
	F.	Audit.	6–8	Rest	15–13	Audit.	21–23	Audit.	2–4	Rest	9–11	Audit.	19
Auditorium — II.....	M.	16–14	Assist in Audit.	22	Assist in Audit.	5–7	Rest	12–10	Assist in Audit.	18	Assist in Audit.	1–3	Rest
	T.	16–14	Audit.	24	Audit.	5–7	Rest	12–10	Audit.	20	Audit.	1–3	Rest
	W.	16–14	Audit.	22	Audit.	5–7	Rest	12–10	Audit.	18	Audit.	1–3	Rest
	T.	16–14	Audit.	24	Audit.	5–7	Rest	12–10	Audit.	18–20	Audit.	1–3	Rest
	F.	14	Audit.	22–24	Audit.	5–7	Rest	12–10	Audit.	18–20	Audit.	1–3	Rest
Gymnasium — I.....	M.	Assist in Gym.	2–4	Play 6–8	Rest	1–3	Play 5–7	Assist in Gym.	6–8	Play 4	Rest	5–7	Play 1–3
	T.	Gym.	2–4	Play 8	Rest	1–3	Play 7	Gym.	6–8	Play 2–4	Rest	5–7	Play 1
	W.	Gym.	2–4	Play 6–8	Rest	1–3	Play 5	Gym.	6–8	Play 2–4	Rest	5–7	Play 1
	T.	Gym.	2–4	Play 6	Rest	1–3	Play 5–7	Gym.	6–8	Play 2–4	Rest	5–7	Play 1–3
	F.	Gym.	2–4	Play 8	Rest	1–3	Play 7	Gym.	6–8	Play 2–4	Rest	5–7	Play 1–3
Gymnasium — II	M.	12–10	Play 14	Assist in Gym.	11–9	Play 13	Rest	16–14	Play 10	Rest	15–13	Play 9–17	Assist in Gym.
	T.	12–10	Unassi'd	Gym.	11–9	Unassi'd	Rest	16–14	Play 10	Rest	15–13	Play 9	Gym.
	W.	12–10	Play 16	Gym.	11–9	Play 15	Rest	16–14	Pl. 10–12	Rest	15–13	Play 11	Gym.
	T.	12–10	Play 16	Gym.	11–9	Play 15	Rest	16–14	Play 10	Rest	15–13	Play 9	Gym.
	F.	12–10	Play 14	Gym.	11–9	Play 13	Rest	16–14	Play 12	Rest	15–13	Play 9–11	Gym.
Gymnasium — III ...	M.	Unassi'd	Assist in Gym.	20–18		Rest	19–17	Play 2	Rest	24–22	Unassig'd	Assist in Gym.	21–23
	T.	Play 6	Gym.	20–18	Play 5	Rest	19–17	Unassi'd	Rest	24–22	Play 3	Gym.	21–23
	W.	Unassi'd	Gym.	20–18		Rest	19–17	Unassi'd	Rest	24–22	Pl. 3–17	Gym.	21–23
	T.	Unassi'd	Gym.	20–18		Rest	19–17	Play 18	Rest	24–22	Unassi'd	Gym.	21–23
	F.	Play 6	Gym.	20–18	Play 5	Rest	19–17	Play 18	Rest	24–22	Unassi'd	Gym.	21–23

Literature — I.....	M.	4	Rest	2	3	11	1	6	16	8	5	Rest	7
	T.	4	Rest	2	3	11	1	6	16	8	5	Rest	7
	W.	4	Rest	2	3	11	1	6	16	8	5	Rest	7
	T.	4	Rest	2	3	11	1	6	16	8	5	Rest	7
	F.	4	Rest	2	3	11	1	6	16	8	5	Rest	7
Literature — II....	M.	20	18	10	19	17	Rest	24	22	14	23	21	Rest
	T.	20	18	10	19	17	Rest	24	22	14	23	21	Rest
	W.	20	18	10	19	17	Rest	24	22	14	23	21	Rest
	T.	20	18	10	19	17	Rest	24	22	14	23	21	Rest
	F.	20	18	10	19	17	Rest	24	22	14	23	21	Rest
Science — I	M.	2	10	4	1	Rest	3	8	Rest	6	7	13	5
	T.	2	10	4	1	Rest	3	8	Rest	6	7	13	5
	W.	2	10	4	1	Rest	3	8	Rest	6	7	13	5
	T.	2	10	4	1	Rest	3	8	Rest	6	7	13	5
	F.	2	10	4	1	Rest	3	8	Rest	6	7	13	5
Science — II	M.	18	20	Rest	17	19	11	22	24	Rest	21	23	15
	T.	18	20	Rest	17	19	11	22	24	Rest	21	23	15
	W.	18	20	Rest	17	19	11	22	24	Rest	21	23	15
	T.	18	20	Rest	17	19	11	22	24	Rest	21	23	15
	F.	18	20	Rest	17	19	11	22	24	Rest	21	23	15
Relief.....	M.	Unassi'd	12 Lit.	12 Sci.	Rest	9 Sicence	9 Lit.	Unassi'd	14 Sci.	16 Science	Rest	15 Lit.	13 Lit.
	T.	8 Art	12 Lit.	12 Sci.	Rest	9 Science	9 Lit.	4 Art	14 Sci.	16 Science	Rest	15 Lit.	13 Lit.
	W.	6 Art	12 Lit.	12 Sci.	Rest	9 Science	9 Lit.	2 Art	14 Sci.	16 Science	Rest	15 Lit.	13 Lit.
	T.	8 Art	12 Lit.	12 Sci.	Rest	9 Science	9 Lit.	4 Art	14 Sci.	16 Science	Rest	15 Lit.	13 Lit.
	F.	Unassi'd	12 Lit.	12 Sci.	Rest	9 Science	9 Lit.	Unassi'd	14 Sci.	16 Science	Rest	15 Lit.	13 Lit.
Music.....	M.	6	Unassi'd	16	5	Rest	15	Unassi'd	12	10	3	Rest	9
	T.	Rest	24	14	Rest	23	13	2	20	Rest	1	19	11
	W.	8	22	Rest	7	21	15	4	18	Rest	19	17	11
	T.	6	24	16	5	23	Rest	2	20	10	1	17	Rest
	F.	8	22	14	7	21	13	4	18	12	3	Rest	9
Art.....	M.	22	22	Rest	21	21	Rest	18	18	2	1	11	11
	T.	Rest	16	16	7	15	15	Rest	12	12	17	17	9
	W.	Rest	14	14	5	13	13	Rest	Rest	10	1	9	3
	T.	Rest	14	14	7	13	13	Rest	12	12	3	11	11
	F.	24	24	6	23	23	5	20	20	10	19	19	Rest

ASSIGNMENT OF TEACHER'S WORK IN SPECIAL ACTIVITIES, TWENTY-FOUR SECTION PLATOON SCHOOL
GRADES 1B THROUGH 8A (*Continued*)

		8:30–9	9–9:30	9:30–10	10–10:30	10:30–11	11–11:30	12:30–1	1:1–30	1:30–2	2–2:30	2:30–3	3–3:30
Library....	M.	8	16	14	7	15	13	4	Rest	12	17	S. S.	Rest
	T.	24	14	6	23	13	5	20	Rest	10	19	11	3
	W.	22	Rest	16	21	S. S.	7	18	Rest	12	S. S.	19	9
	T.	24	S. S.	8	23	Rest	15	20	18	S. S.	17	Rest	9
	F.	22	S. S.	Rest	21	S. S.	Rest	2	10	S. S.	1	Rest	11
Manual Arts.....	M.	24	24	24	23	23	23	20	20	20	19	19	19
	T.	22	22	22	21	21	21	18	18	18	Rest	Rest	Rest
	W.	24	24	24	23	23	23	20	20	20	Rest	Rest	Rest
	T.	22	22	22	21	21	21	Rest	Rest	Rest	19	19	19
	F.	16	16	16	15	15	15	Adjacent School			17	17	17

KEY

Class 1 — B1
2 — B1
3 — A1
4 — A1
5 — B2
6 — A2

Class 7 — B3
8 — B3
9 — A3
10 — A3
11 — B4
12 — B4

Class 13 — A4
14 — A4
15 — B5
16 — A5
17 — B6
18 — A6

Class 19 — B7
20 — A7
21 — B8
22 — B8
23 — A8
24 — A8

S. S. — Supervised Study

Lit. — Literature

Year	No. Platoon Schools
1918–1919	6
1919–1920	15
1920–1921	29
1921–1922	42
1922–September, 1924	77

In the tabulation presented below the 77 platoon schools now in operation (September, 1924) are divided into three groups:

(1) New buildings designed especially for the platoon organization.
(2) New additions to existing buildings.
(3) Existing buildings reorganized.

Detroit Platoon Schools

1918–1924

I. new buildings

School	Organized	Pupil Capacity	Grades Included	Predominating Nationality		
				1	2	3
Maybee	1918–19	960	K6	Russia	Lithuania	Italy
Kennedy	1918–19	640	K7	U. S.	Canada	Germany
Wilson	1919–20	1000	K8	U. S.	Canada	Germany
Keating	1920–21	1280	K7	U. S.	Canada	Germany
Pattengill	1920–21	1840	K8	U. S.	Canada	England
Balch	1921–22	1000	K8	Russia	U. S.	Poland
Cooper	1921–22	1840	K8	U. S.	Poland	Germany
Custer	1921–22	800	K8	U. S.	Italy	Canada
White	1921–22	720	K8	Poland	U. S.	U. S. (Col.)
Courville	1923–24	480	K6	U. S.	Poland	U. S. (Col.)
Guyton	1923–24	480	K5	U. S.	Canada	Germany
Hosmer	1923–24	480	K5	U. S.	Belgium	Canada
Poe	1923–24	1120	K6	U. S.	Canada	U. S. (Col.)
Brady	1924–25	1360	K6	U. S.	Canada	England
Duffield	1924–25	2240	K6	Italy	U. S. (Col.)	U. S.
Ferry	1924–25	1160	K8	Poland	U. S.	Germany
Noble	1924–25	1360	K8	U. S.	Canada	England

II. NEW ADDITIONS TO OLD BUILDINGS

School	Organized	Pupil[1] Capacity	Grades Included	Predominating Nationality		
				1	2	3
Columbian	1918–19	1080	K6	U. S.	U. S. (Col.)	Poland
Hely	1918–19	960	K8	U. S.	Poland	Germany
Russell	1918–19	1370	K8	Italy	Russia	Poland
Stephens	1918–19	1120	K8	U. S.	Germany	Poland
Angell	1919–20	1120	K8	U. S.	Canada	England
Greenfield Pk.	1919–20	1240	K8	U. S.	England	Canada
Greusel	1919–20	1240	K8	Poland	U. S.	Germany
Lincoln	1919–20	1505	K8	Russia	U. S. (Col.)	Poland
Marxhausen	1919–20	1080	K6	U. S.	Italy	Germany
Alger	1920–21	720	K8	U. S.	Russia	Poland
Carstens	1920–21	1465	K8	U. S.	Canada	Belgium
Dwyer	1920–21	1280	K8	Russia	Poland	Italy
Ellis	1920–21	1120	K8	Poland	U. S.	Germany
Field	1920–21	680	K8	U. S.	Canada	England
Longfellow	1920–21	1160	K8	U. S.	Canada	U. S. (Col.)
Moore	1920–21	1680	K8	Russia	U. S.	Poland
Nichols	1920–21	865	K7	U. S.	Canada	Germany
Parke	1920–21	850	K7	Poland	U. S.	Germany
Thirkell	1920–21	1120	K6	U. S.	Canada	England
Trowbridge	1920–21	640	K6	Russia	U. S. (Col.)	Poland
Crosman	1921–22	905	K6	U. S.	Canada	Russia
Davison	1921–22	2000	K8	U. S.	Poland	U. S. (Col.)
Doty	1921–22	890	K6	U. S.	Canada	Russia
Estabrook	1921–22	720	K8	U. S.	Canada	England
George	1921–22	960	K7	Italy	U. S. (Col.)	Russia
Houghton	1921–22	865	K8	U. S.	Canada	England
Majeske	1921–22	880	K7	Poland	U. S.	Russia
Marr	1921–22	720	K8	U. S.	Canada	England
Sampson	1921–22	1400	K8	U. S.	Canada	Germany
Burton	1922–23	800	K8	U. S.	England	Canada
Chandler	1922–23	865	K8	U. S.	Italy	Germany
Clippert	1922–23	1160	K8	Poland	Italy	U. S.
Franklin	1922–23	2105	K8	U. S.	Canada	Malta
Grayling	1922–23	520	K8	U. S.	Canada	England
Holmes, A. L.	1922–23	1105	K6	U. S.	Italy	Poland
Holmes, O. W.	1922–23	1000	K8	U. S.	Poland	Germany
Marcy	1922–23	680	K7	U. S.	Germany	Canada
Wingert	1922–23	985	K8	U. S.	U. S. (Col.)	Canada
Barstow	1923–24	1120	K6	Italy	U. S. (Col.)	U. S.
Hutchinson	1923–24	1185	K8	U. S.	Belgium	Germany
Garfield	1923–24	2040	K8	Poland	Canada	England
Lillibridge	1923–24	1000	K8	U. S.	Roumania	Austria

III. EXISTING BUILDINGS REORGANIZED

School	Organized	Pupil[1] Capacity	Grades Included	Predominating Nationality		
				1	2	3
Breitmeyer	1919–20	865	K7	U. S.	Russia	U. S. (Col.)
Lingemann	1919–20	880	K8	U. S.	Canada	England
Newberry	1919–20	840	K6	Poland	U. S.	Russia
Bishop	1920–21	1680	K8	Russia	U. S. (Col.)	Poland
Pingree	1923–24	620	K6	U. S.	Germany	Belgium
Smith	1923–24	600	K6	U. S.	Germany	Italy
Tilden	1923–24	600	K6	U. S.	Canada	England
Chaney	1924–25	580	K6	U. S.	Poland	Canada
Goldberg	1924–25	1480	K8	U. S.	Canada	England
Higgins	1924–25	680	K6	U. S.	Germany	Hungary
Hillger	1924–25	640	K6	U. S.	Germany	Canada
Howe	1924–25	600	K8	U. S.	Canada	Germany
Lynch	1924–25	640	K8	U. S.	Poland	Germany
Maybury	1924–25	760	K6	U. S.	Canada	England
Rose	1924–25	580	K8	U. S.	Germany	Canada
Sill	1924–25	560	K6	U. S.	Poland	Germany
Van Dyke	1924–25	520	K8	U. S.	Canada	England
Webster	1924–25	720	K8	U. S.	Canada	England

[1] Capacities in above tables do not include kindergarten.

Comparative Capacities of 77 School Buildings under Non-Platoon and Platoon Organizations

Schools	Non-Platoon Capacity[1]	Platoon Capacity[1]	Increase Capacity	Per Cent Increase
1. Alger	520	720	200	38.4
2. Angell	840	1120	280	33.3
3. Balch	720	1000	280	38.8
4. Barstow	1000	1120	120	12.
5. Bishop	1320	1680	360	27.2
6. Brady	1080	1360	280	24.
7. Breitmeyer	600	865	265	44.1
8. Burton	560	800	240	42.8
9. Carstens	1040	1465	425	40.
10. Chandler	600	865	265	44.1
11. Chaney	505	580	75	14.8
12. Clippert	880	1160	280	31.8
13. Columbian	800	1080	280	35.0
14. Cooper	1360	1840	480	35.2
15. Courville	440	480	40	9.0
16. Crosman	640	905	265	41.
17. Custer	560	800	240	42.8
18. Davison	1640	2000	360	22.
19. Doty	600	890	290	48.3
20. Duffield	1760	2240	480	27.2
21. Dwyer	1000	1280	280	28.0
22. Ellis	840	1120	280	33.3
23. Estabrook	520	720	200	38.4
24. Ferry	920	1160	240	26.
25. Field	480	680	200	41.6
26. Franklin	1560	2105	545	34.9
27. Garfield	1760	2040	480	16.
28. George	680	960	280	41.1
29. Goldberg	1345	1480	295	10.
20. Grayling	360	520	160	44.4
31. Greenfield Park	880	1240	360	40.1
32. Greusel	960	1240	280	29.1
33. Guyton	440	480	40	9.0
34. Hely	680	960	280	41.1
35. Higgins	640	680	40	6.2
36. Hillger	560	640	80	14.3
37. Holmes, A. L.	840	1105	265	31.5
38. Holmes, O. W.	720	1000	280	38.8
39. Hosmer	440	480	40	9.0
30. Houghton	560	865	305	54.4
41. Howe	560	600	40	7.1
42. Hutchinson	1000	1185	185	18.5
43. Keating	1000	1280	280	28.0
44. Kennedy	440	640	200	45.4
45. Lillibridge	920	1000	80	8.7
46. Lincoln	1080	1505	425	39.3
47. Lingemann	640	880	240	37.5
48. Longfellow	880	1160	280	31.8
49. Lynch	600	640	40	6.6
50. Majeske	640	880	240	37.5
51. Marcy	480	680	200	41.6
52. Marr	560	720	160	28.6
53. Marxhausen	880	1080	200	22.7
54. Maybee	720	960	240	33.3
55. Maybury	585	760	75	12.8
56. Moore	1160	1680	520	44.8
57. Newberry	600	840	240	40.0
58. Nichols	600	865	265	44.1

Schools	Non-Platoon Capacity	Platoon Capacity	Increase Capacity	Per Cent Increase
59. Noble	1080	1360	280	26.
60. Parke	560	850	290	51.7
*61. Pattengill	1360	1840	480	35.2
62. Pingree	500	620	120	24.
*63. Poe	880	1120	240	27.2
64. Rose	440	580	140	31.8
65. Russell	960	1370	410	42.7
66. Sampson	1120	1400	280	25.0
67. Sill	505	560	55	10.9
68. Smith	480	600	120	25.
69. Stephens	880	1120	240	27.7
70. Thirkell	840	1120	280	33.3
71. Tilden	600	600	0	0
72. Trowbridge	440	640	200	45.4
73. Van Dyke	480	520	40	8.
74. Webster	720	720	0	0
75. White	520	720	200	38.4
76. Wilson	720	1000	280	38.8
77. Wingert	680	985	305	44.8

[1] Capacities in above table do not include kindergarten.

Time Schedule

	Platoon Grades								Non-Platoon Grades							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Reading	725	625	400	250	150	150	100	100	740	575	390	250	205	175	125	125
Spelling	75	75	100	100	100	100	100	100	0	75	75	75	100	100	100	100
Arithmetic	0	100	200	250	250	250	250	250	0	90	200	200	250	250	250	250
Writing	0	0	100	100	100	100	100	100	0	0	75	75	75	75	75	75
English	150	150	150	150	250	250	300	300	150	150	150	200	250	250	300	300
Geog., Hist., and Nature	150	150	150	250	250	250	250	250	100	100	100	180	250	250	250	250
TOTAL	1100	1100	1100	1100	1100	1100	1100	1100	990	990	990	980	1130	1130	1100	1100
RECESS	100	100	100	100	100	100	100	100	150	150	150	100	100	100	100	100
M. Arts	0	0	0	60	90	90	180	180	0	0	0	60	60	90	90	90
Gym. Health	150	150	150	150	150	150	150	150	200	200	200	200	200	200	200	200
Play	150	150	120	60	60	60	0	0	0	0	0	0	0	0	0	0
Music	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Art	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Auditorium or Opening Exercises	150	150	150	150	120	120	90	90	40	40	40	40	40	40	40	40
Library	30	30	60	60	60	60	60	60	0	0	0	0	0	0	0	0
TOTAL	600	600	600	600	600	600	600	600	360	360	360	420	420	450	450	450
SUMMARY																
Fundamentals	1100	1100	1100	1100	1100	1100	1100	1100	990	990	990	980	1130	1100	1100	1100
Specials	600	600	600	600	600	600	600	600	360	360	360	420	420	450	450	450
Recess	100	100	100	100	100	100	100	100	150	150	150	100	100	100	100	100
TOTAL	1800	1800	1800	1800	1800	1800	1800	1800	1500	1500	1500	1500	1650	1650	1650	1650

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